

**Pir Mehr Ali Shah
ARID AGRICULTURE UNIVERSITY
RAWALPINDI**

DEPARTMENT OF ZOOLOGY

(M. Phil. Programme)



Self Assessment Report

7th Cycle (2018-20)

Program Team

Dr. Mazhar Qayyum (Coordinator)

Dr. Muhammad Sajid Nadeem (Member)

Dr. Muhammad Irfan (Member)

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1. INTRODUCTION

The department of Zoology was established in 1997 and now it holds a pivotal position in the university and can also be compared with any department of Zoology elsewhere in Pakistan. The M. Phil. degree programs in Zoology and Biology were launched in 2006. This department is a part of the Faculty of Sciences and established to focus teaching and research in various fields of Biological and Zoological Sciences. This department is especially developed to foster an inter-disciplinary approach across a wide range of different fields of Zoology. The Department has earned immense recognition for academic excellence and prominence in various fields of research such as Animal Diversity/Ecology and Wildlife, Genetics, Parasitology, Reproductive Physiology, Endocrinology, Aquaculture and Fisheries and Microbiology. The Department has an experienced faculty actively involved in research activities in collaboration with different institutes such as National Agriculture Research Center (NARC), Museum of Natural History, Institute of Health (NIH), Islamabad and Khan Research Laboratories (KRL), Islamabad.

This program provides students an opportunity to groom themselves and young fellows to communicate and present their skills and to polish their abilities to work individually as well as in a team for leadership qualities, self confidence and interpersonal skills to sustain work pressure.

SECTION-1

CRITERION-1: PROGRAM MISSION, OBJECTIVES AND OUTCOMES

Curriculum and research in Mphil program focused to train up to dated and well trained Biologist and Zoologists, in different sub fields such as Genetics Parasitology/Microbiology, Reproductive Physiology/Endocrinology, Aquaculture and Fisheries and Wildlife/Ecology depend upon student's choice and specific interest.

Mission Statement

This program is established to promote excellence and understanding at all levels of biological organization starts from cellular and molecular level up to ecosystem by also covering organism's level, population and community. We value communication and analytical skills, and field work, and, in keeping with the larger mission of the University in preparing students as job producers instead of job seekers, we place a premium on contextual learning and understanding.

STANDARDS:

Standard 1-1: Documented measurable objectives

Objectives:

Objectives cover both academic as well as research field.

1. To confer students, advance knowledge of subjects starting from basic Zoology.
2. To help students in formulating research plan, project writing, hypothesis generating and execution of research up to thesis writing.

Outcomes:

1. Graduates from the department are getting jobs in both academic as well as research field.
2. Students have strong base in Zoology and hold on different research activities.

Main elements to achieve objectives

Research

1. Uphold main research foci and attempt for distinction in different sub fields of Zoology and Biology.
2. Encourage and promote assimilation across different disciplines and integrative research fields.
3. Promote laboratory research as well as field work.
4. Support research at the interface of experimental and academic biology.
5. Expand and sustain different research programs that lay the foundations for teaching and service, and continue those activities that help in maintaining these services at the forefront of emerging fields.

Teaching

1. Retain a precise, broad-based major in Zoological and Biological sciences that presents a persuasive learning skill.
2. Highlight common problem solving and analytical capacities that have vast applications.
3. Accentuate the basic edifice in biology that comprises idea of unification and integration.
4. Practice exceptional graduate teaching that comprises skilled communication among different disciplines.

TABLE-1: OBJECTIVES ASSESSMENT

S. #	Objective	How Measured	When Measured	Improvement Identified	Improvement made
1	Give basic and advance knowledge of the zoology	Interview, semester examination and comprehensive examination	While entry into the program, end of semester and course work	Curriculum update and faculty training	Specific optional courses are offered to increases knowledge of a specific sub-discipline of Zoology. The courses are given to senior faculty.
2	The ability to formulate a specific research plan and carry out original independent research on a hypothesis to be tested in depth concerning novel ideas about animal biology.	Students are given task to make some hypothesis in the area of their interest	During research planning for M. Phil degree	The ideas must not be copied	Students are forced to get latest review articles and device the hypothesis

TABLE-2: STANDARD 1-2: OBJECTIVES VS OUTCOMES

Outcomes	Objectives		
	Sr. No.	1	2
	1	***	**
	2	**	**

*** Relevant**

**** Relevant and satisfactory**

***** Highly relevant and satisfactory**

TEACHERS EVALUATION

The teachers were evaluated by the students at the end of course completion through the proforma-10 (Annex-II). Detail of performance of each teacher is given in Figures bellow

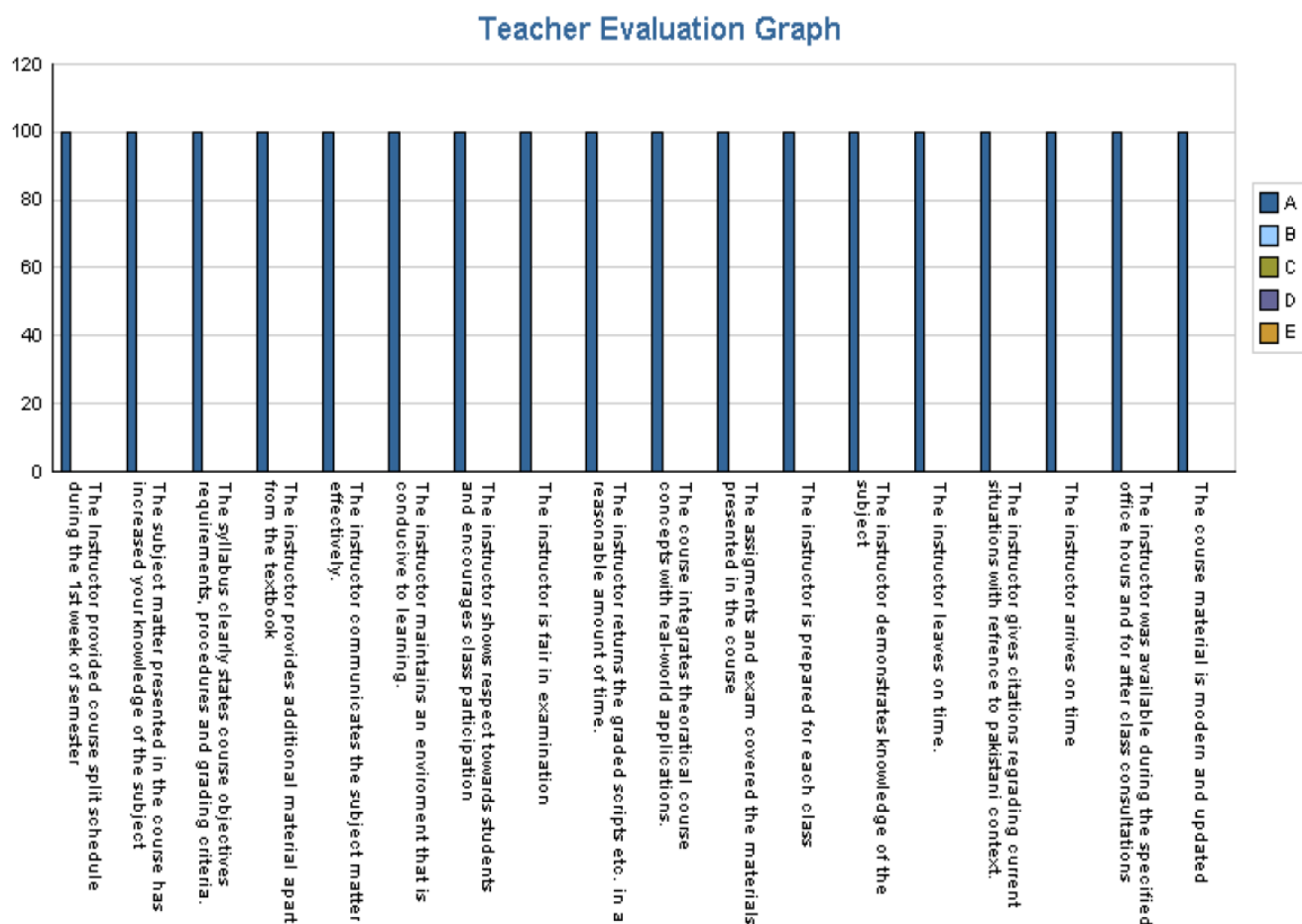
Teacher Name: Muhammad Sajid Nadeem

Course Name: Faunal Biodiversity of Pakistan

Section: B

M/E: E

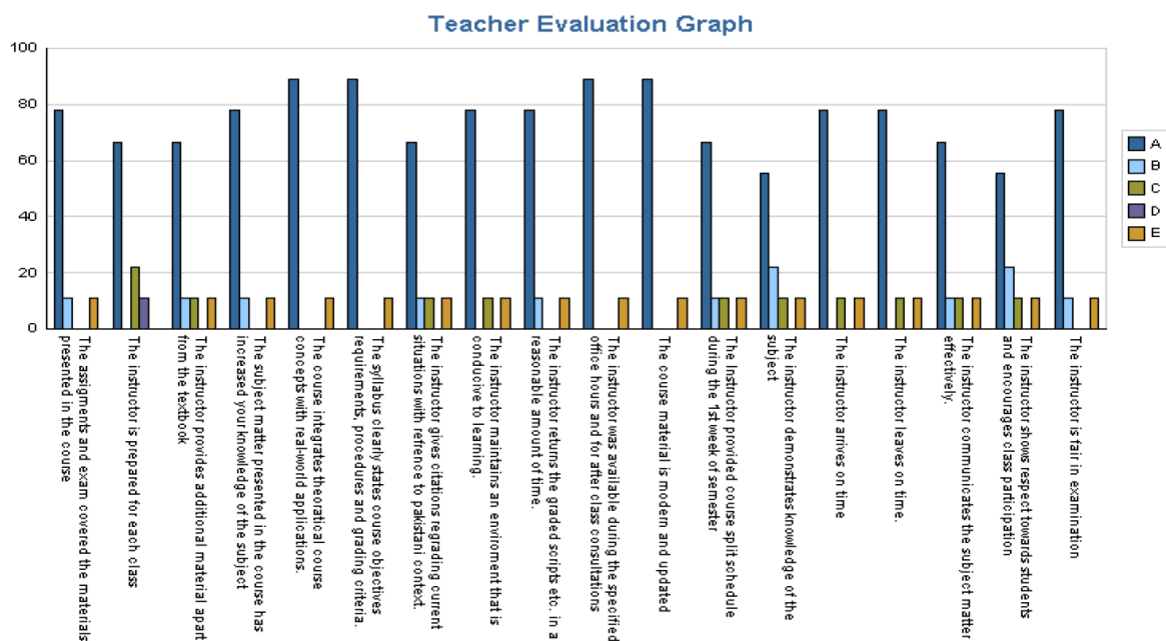
Semester#: 2



Teacher Name: Mazhar Qayyum

Course Name: Helminthology and Protozoology

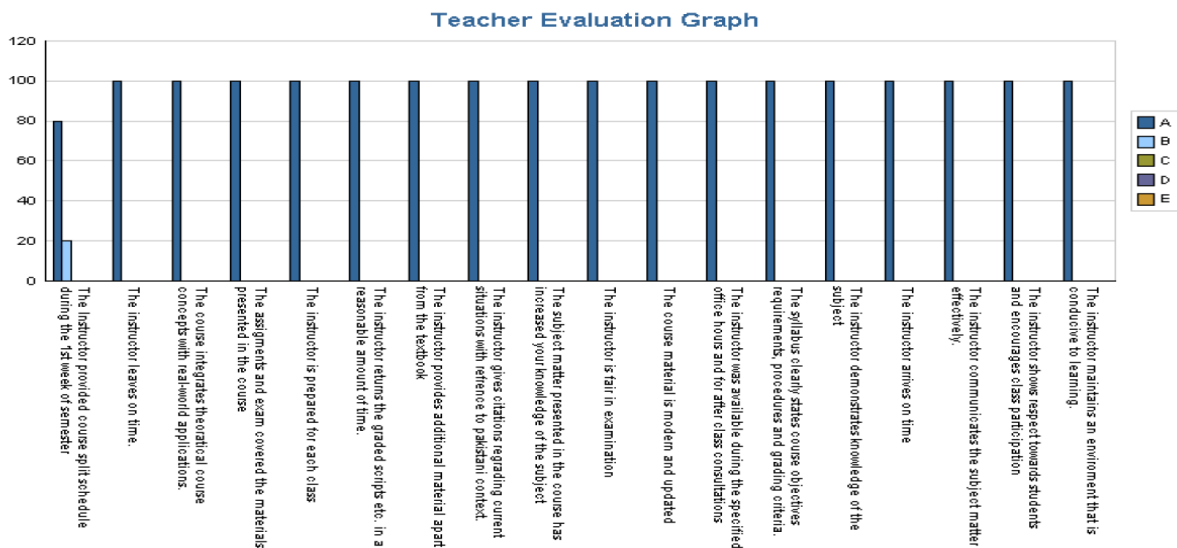
Section: A M/E: M Semester#: 2



Teacher Name: Mazhar Qayyum

Course Name: Helminthology and Protozoology

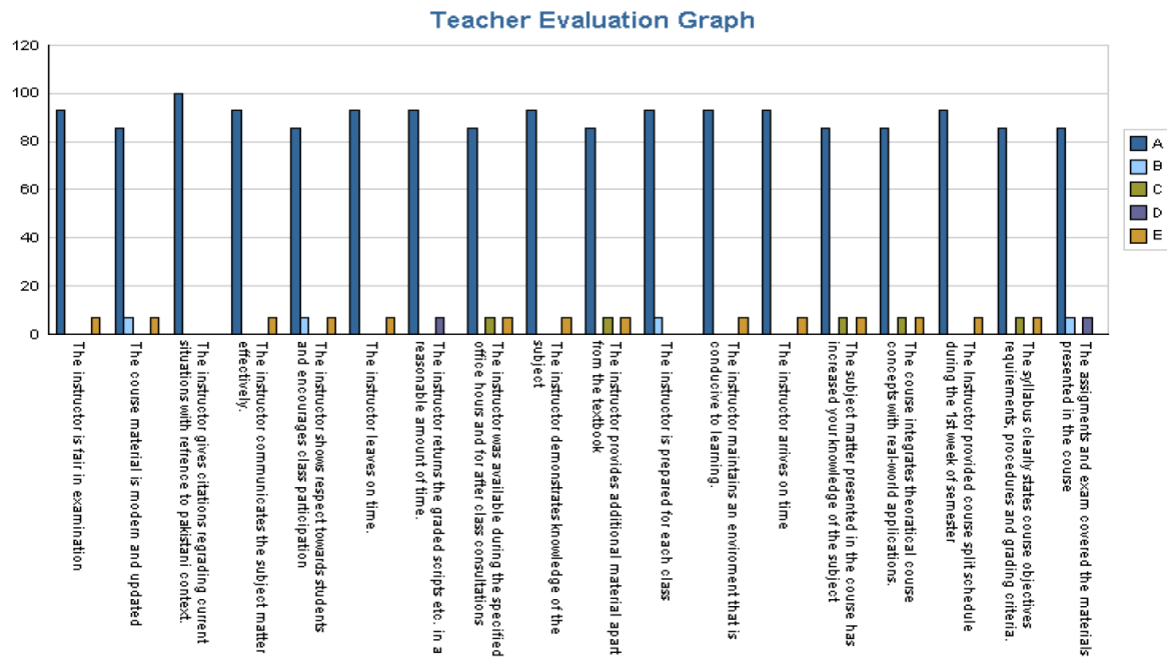
Section: B M/E: E Semester#: 2



Teacher Name: Amjad Rashid Kayani

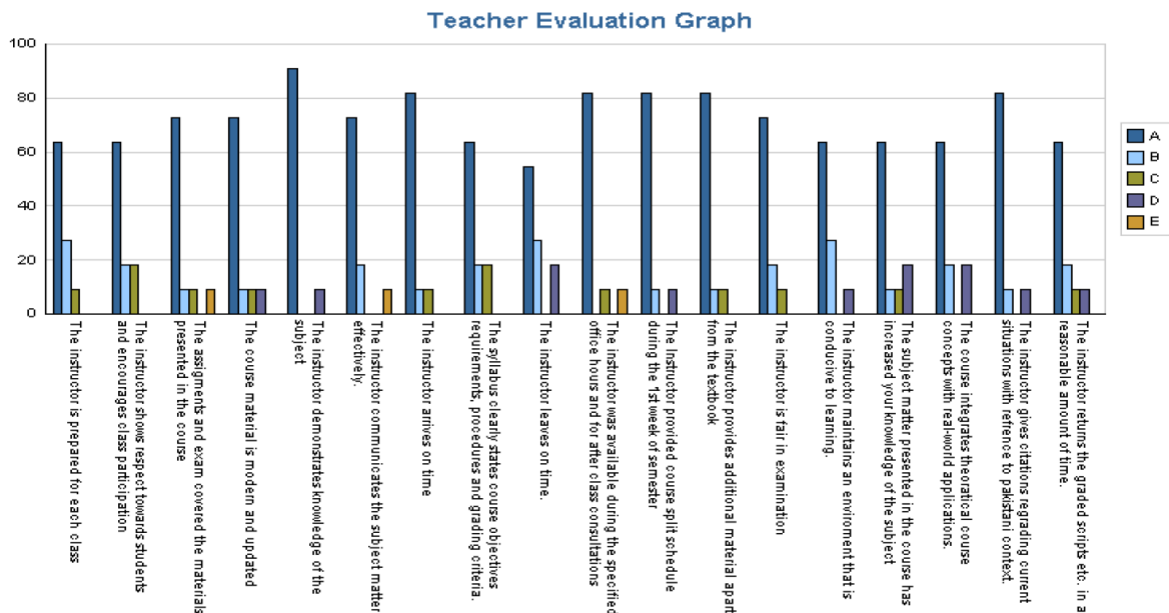
Course Name: Behavioral Ecology

Section: A M/E: M Semester#: 1



Course Name: Behavioral Ecology

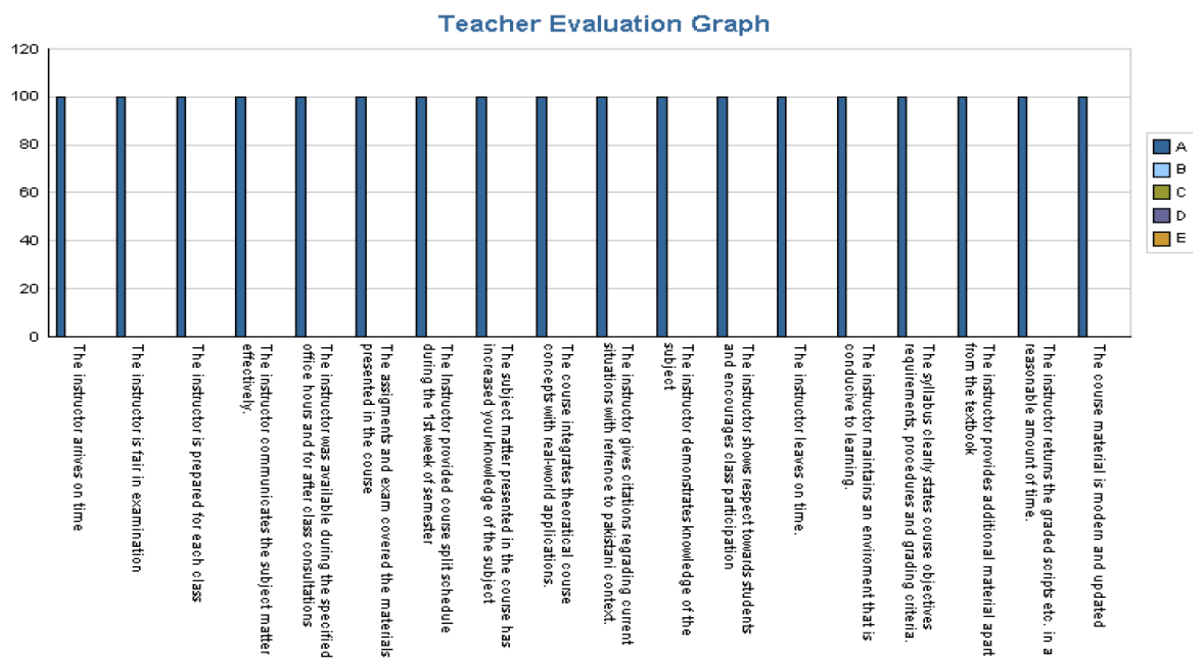
Section: B M/E: E Semester#: 1



Teacher Name: Muhammad Mushtaq

Course Name: Wildlife Conservation and Management

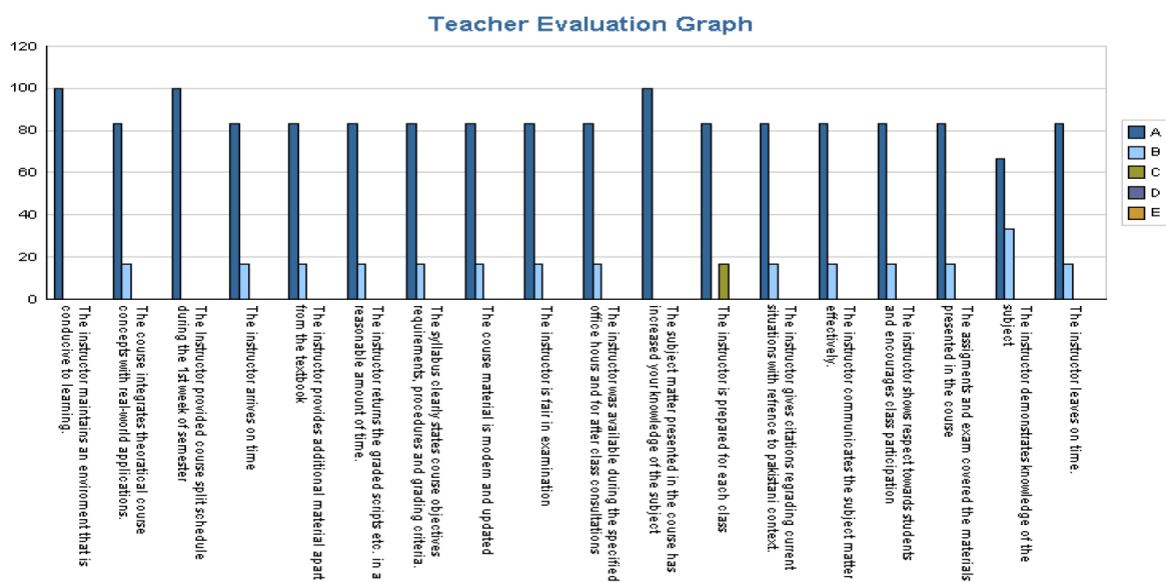
Section: A M/E: M Semester#: 2



Teacher Name: Muhammad Mushtaq

Course Name: Herpetology

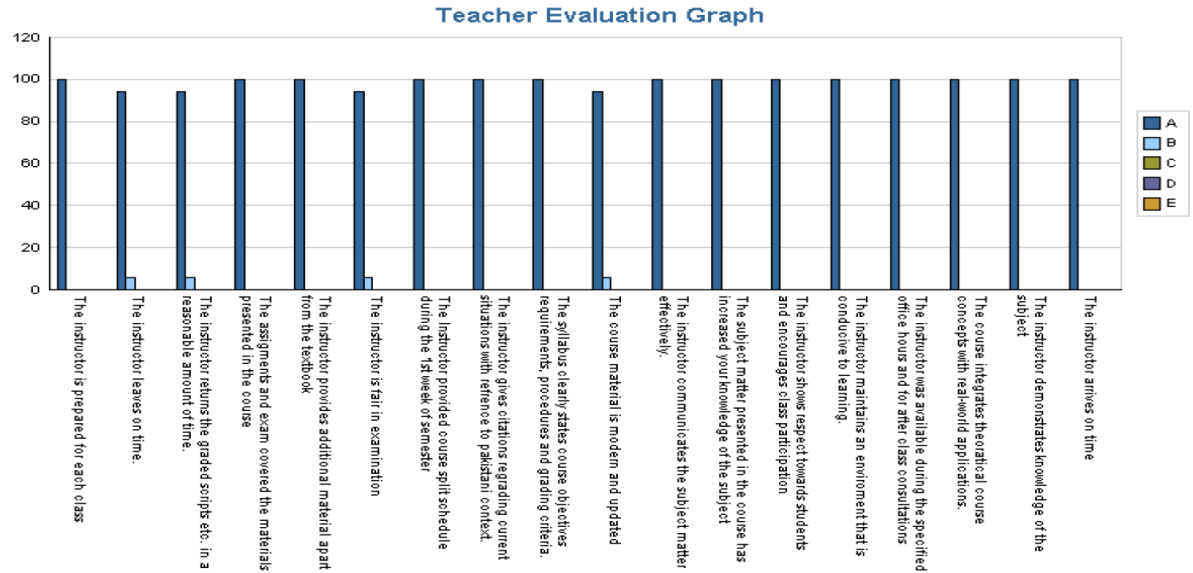
Section: B M/E: B Semester#: 2



Teacher Name: Muhammad Zubair Anjum

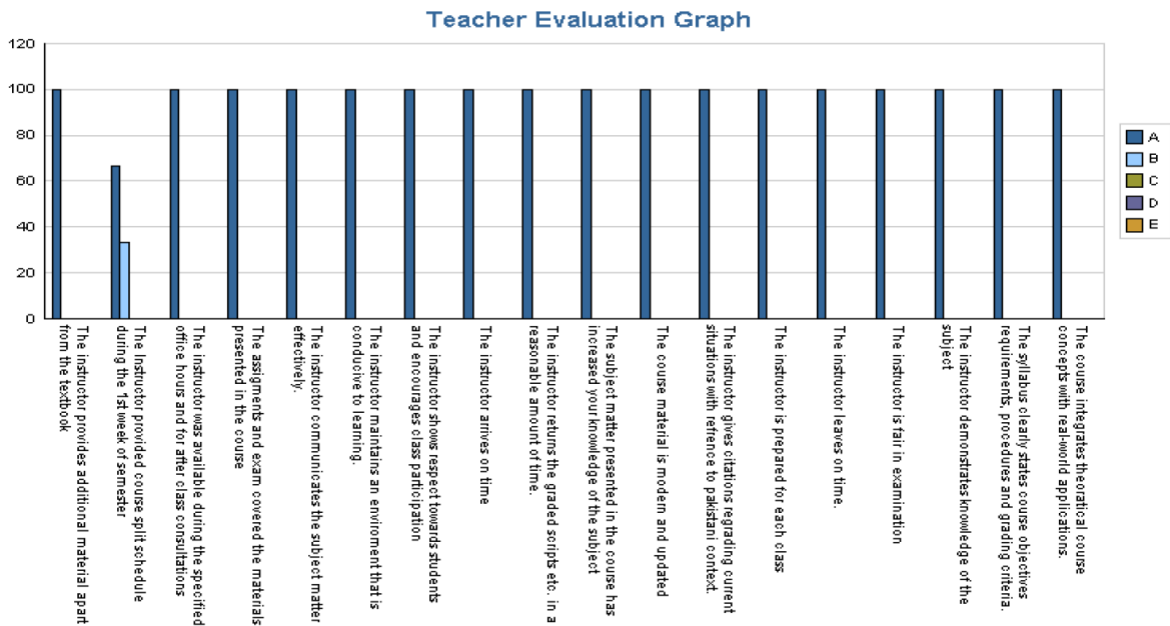
Course Name: Advances in Aquaculture

Section: A M/E: M Semester#: 1



Course Name: Advances in Aquaculture

Section: B M/E: E Semester#: 1



COURSE EVALUATION

Courses were evaluated by students at the end of course completion through proforma-1 (Annex-I). Detail of evaluation of each course is given in figures bellow.

Course #	Course Title	Credit Hours	Course Instructor
ZOOL-715	Faunal Biodiversity of Pakistan	3(2-2)	Dr. M. Sajid Nadeem
ZOOL-721	Helminthology and Protozoology	3(2-2)	Dr. Mazhar Qayyum
ZOOL-731	Behavioral Ecology	3(3-0)	Dr. Amjad Rashid Kayani
ZOOL-732	Herpetology	3(2-2)	Dr. Muhammad Mushtaq
ZOOL-735	Advances in Aquaculture	3(3-0)	Dr. M. Zubair Anjum

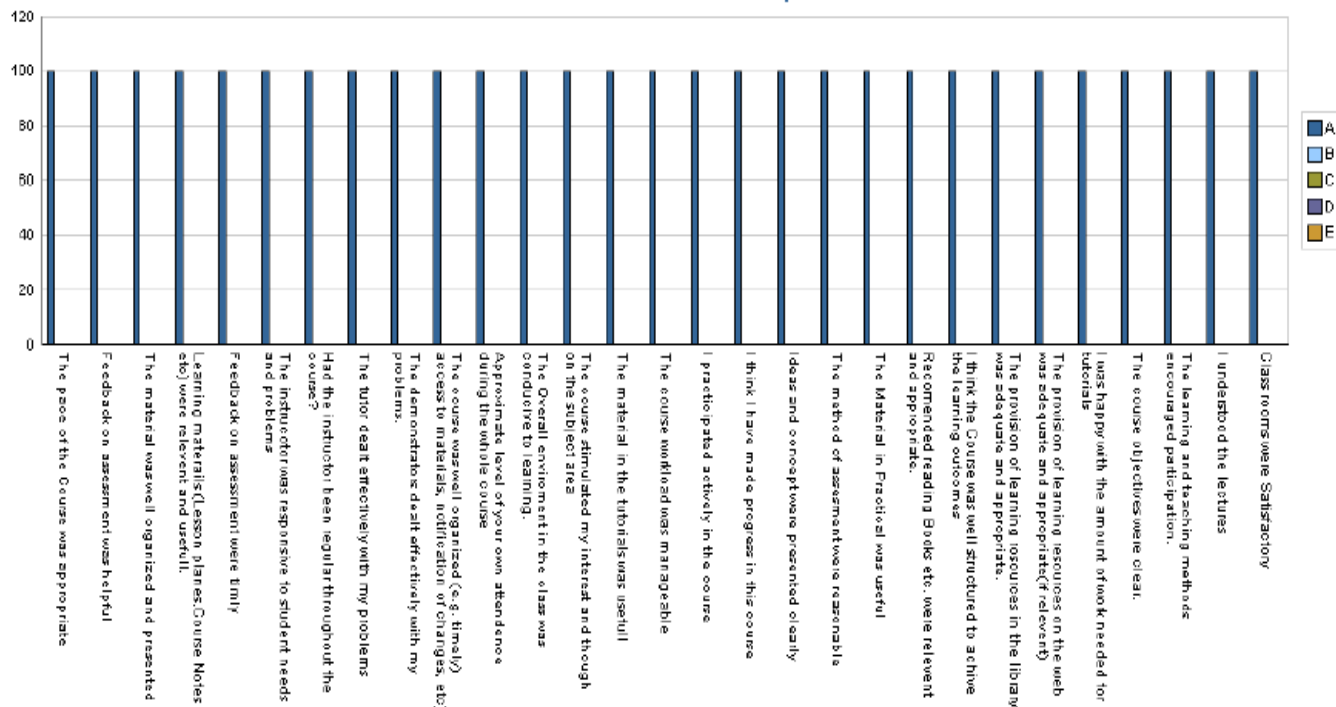
Teacher Name: Muhammad Sajid Nadeem

Course Name: Faunal Biodiversity of Pakistan

Section: B M/E: E Semester# 2

Class: M.Phil (Zoology)

Course Evaluation Graph



Teacher Name: Mazhar Qayyum

Course Name: Helminthology and Protozoology

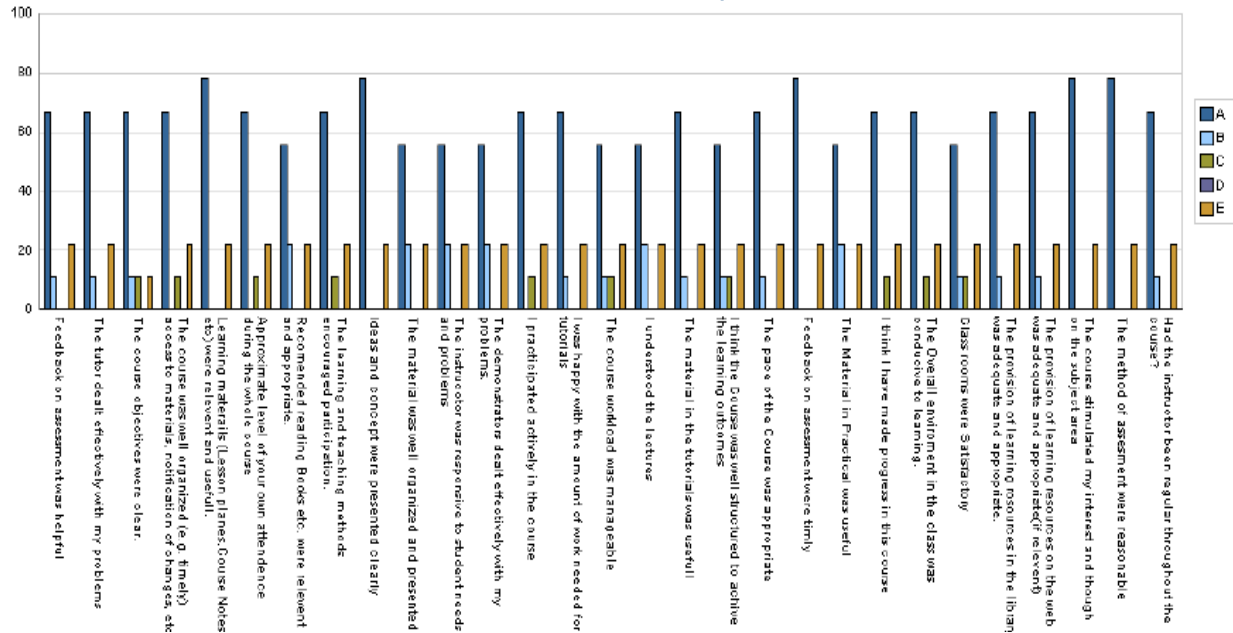
Section: A

M/E: M

Semester# 2

Class: M.Phil (Zoology)

Course Evaluation Graph



Course Name: Helminthology and Protozoology

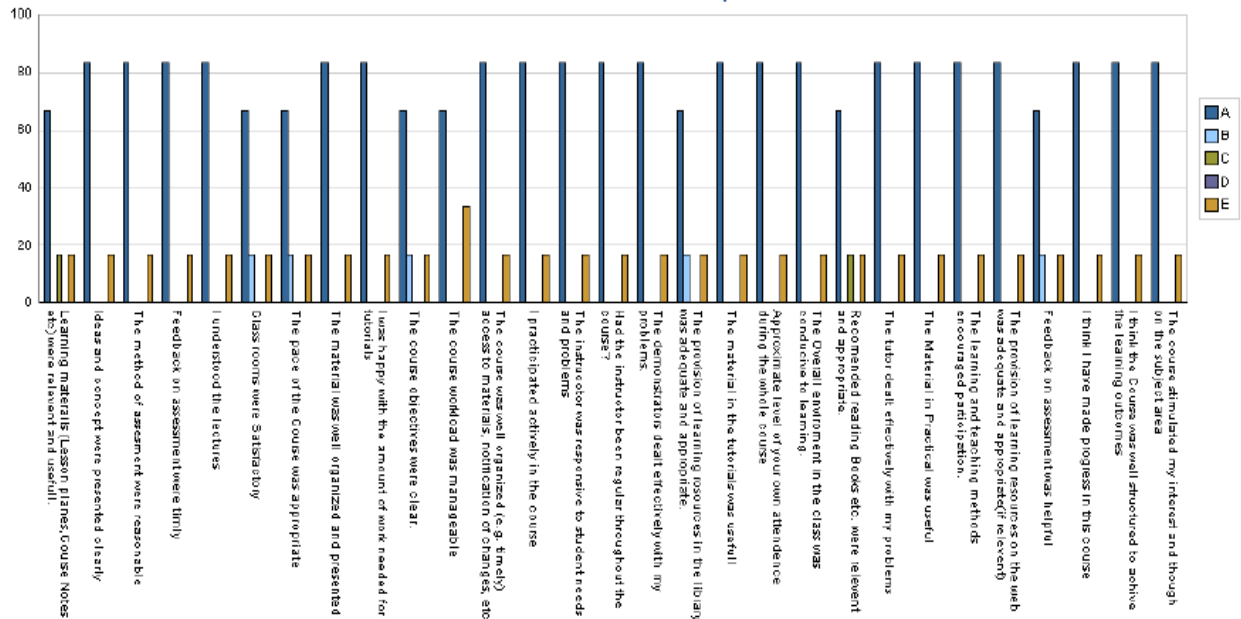
Section: B

M/E: E

Semester# 2

Class: M.Phil (Zoology)

Course Evaluation Graph



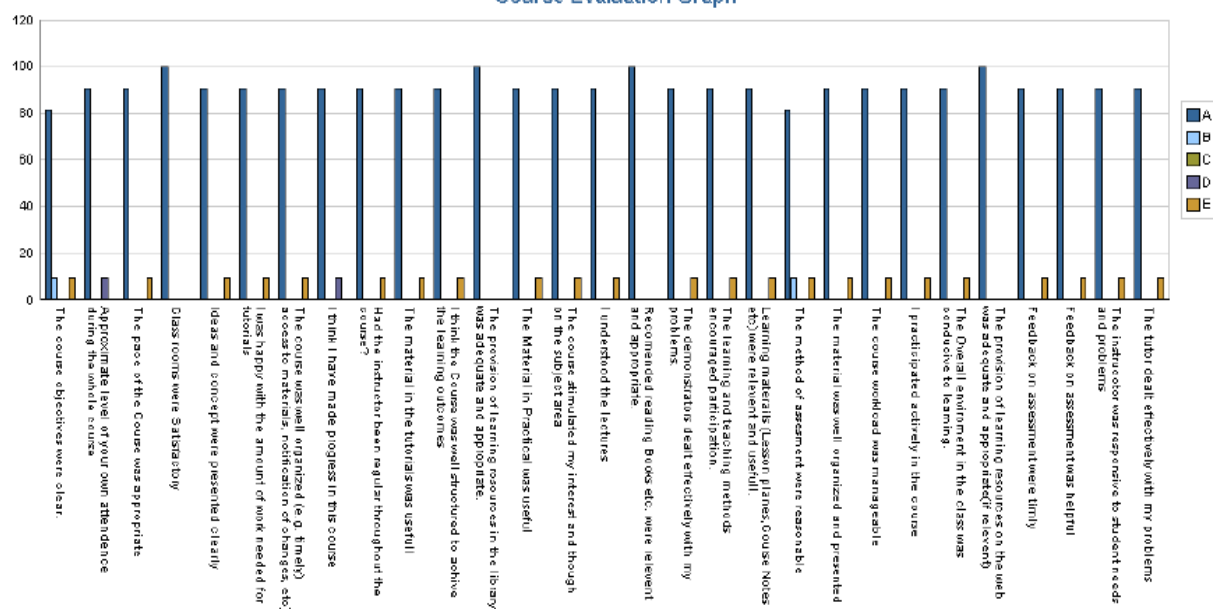
Teacher Name: Amjad Rashid Kayani

Course Name: Behavioral Ecology

Section: A M/E: M Semester# 1

Class: M.Phil (Zoology)

Course Evaluation Graph

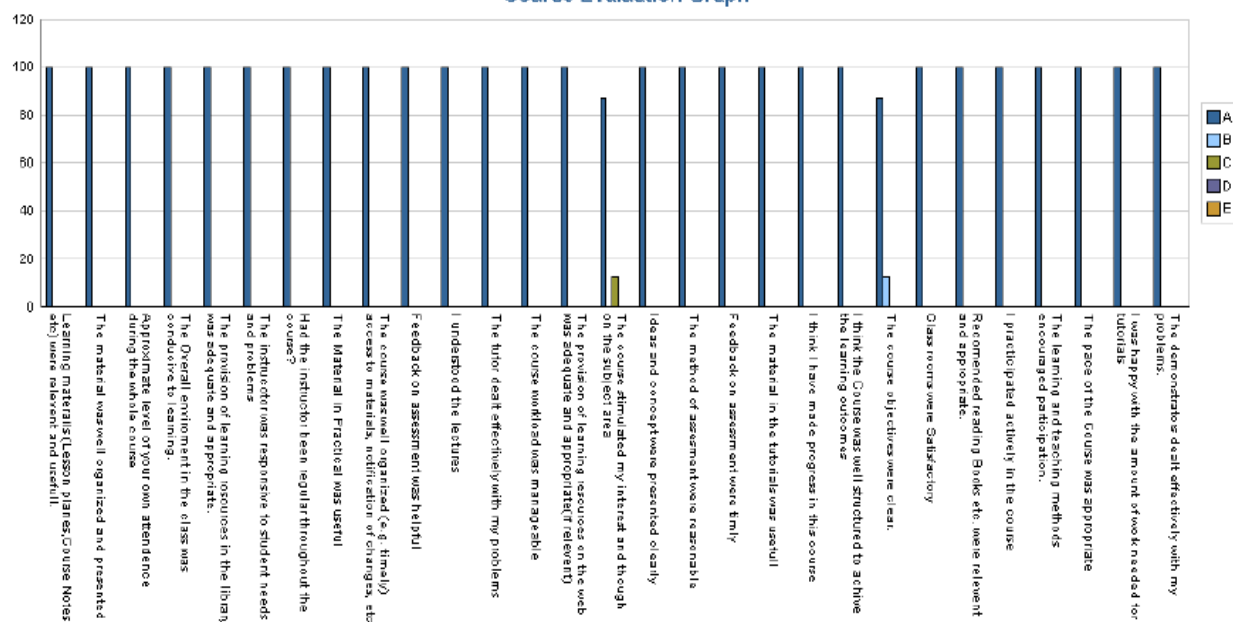


Course Name: Behavioral Ecology

Section: B M/E: E Semester# 1

Class: M.Phil (Zoology)

Course Evaluation Graph



Teacher Name: Muhammad Mushtaq

Course Name: Herpetology

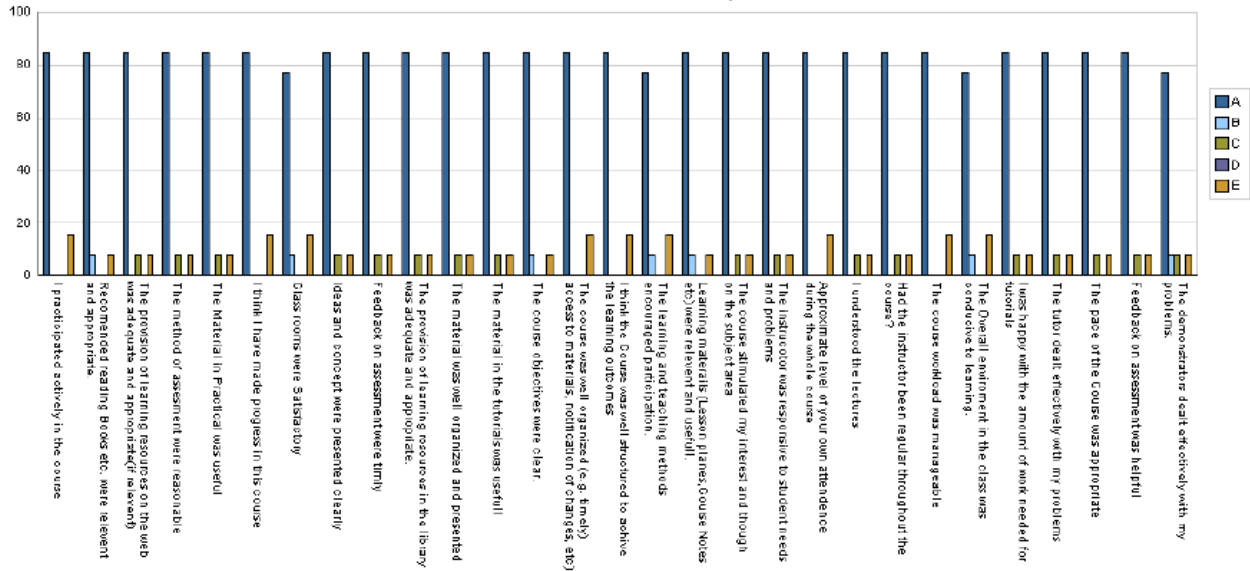
Section: A

M/E: M

Semester# 2

Class: M.Phil (Zoology)

Course Evaluation Graph



Course Name: Herpetology

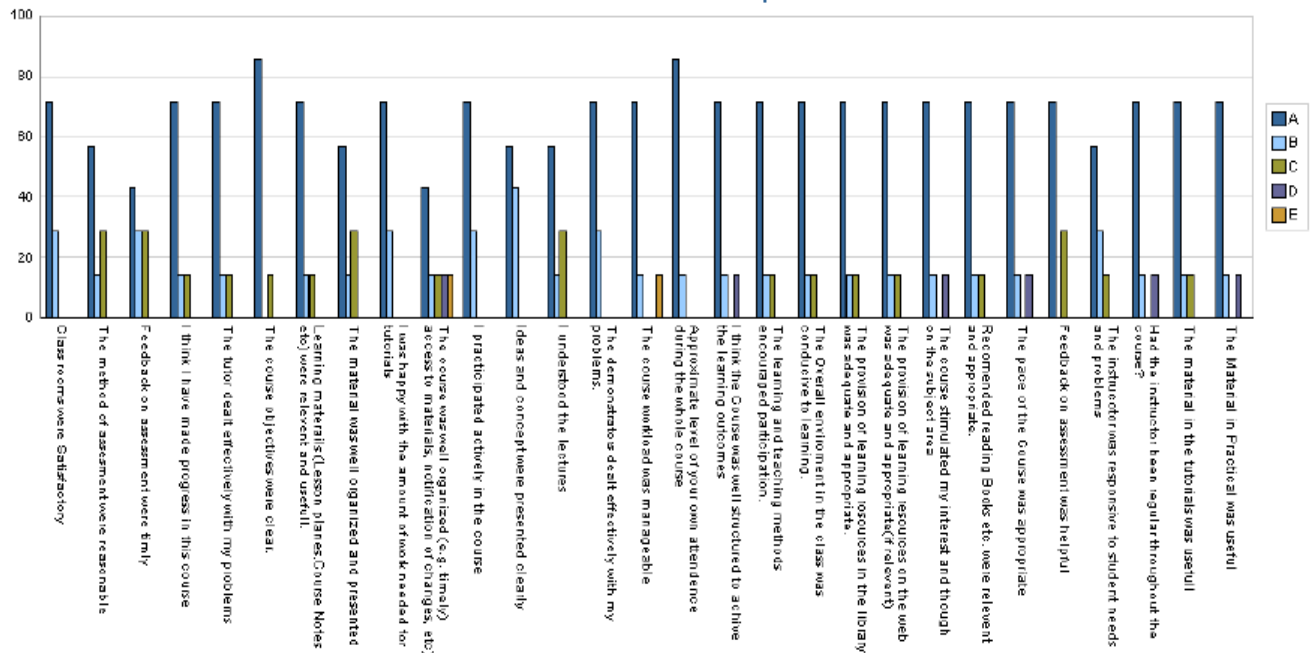
Section: B

M/E: B

Semester# 2

Class: M.Phil (Zoology)

Course Evaluation Graph



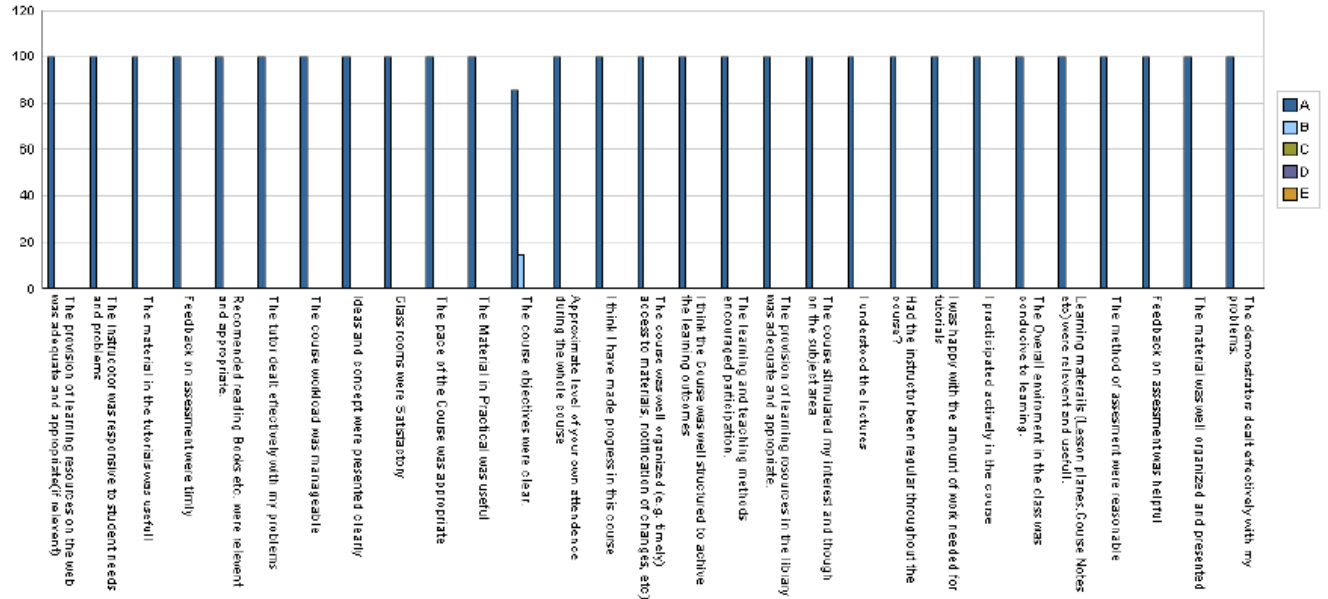
Teacher Name: Muhammad Zubair Anjum

Course Name: Advances in Aquaculture

Section: A M/E: M Semester# 1

Class: M.Phil (Zoology)

Course Evaluation Graph

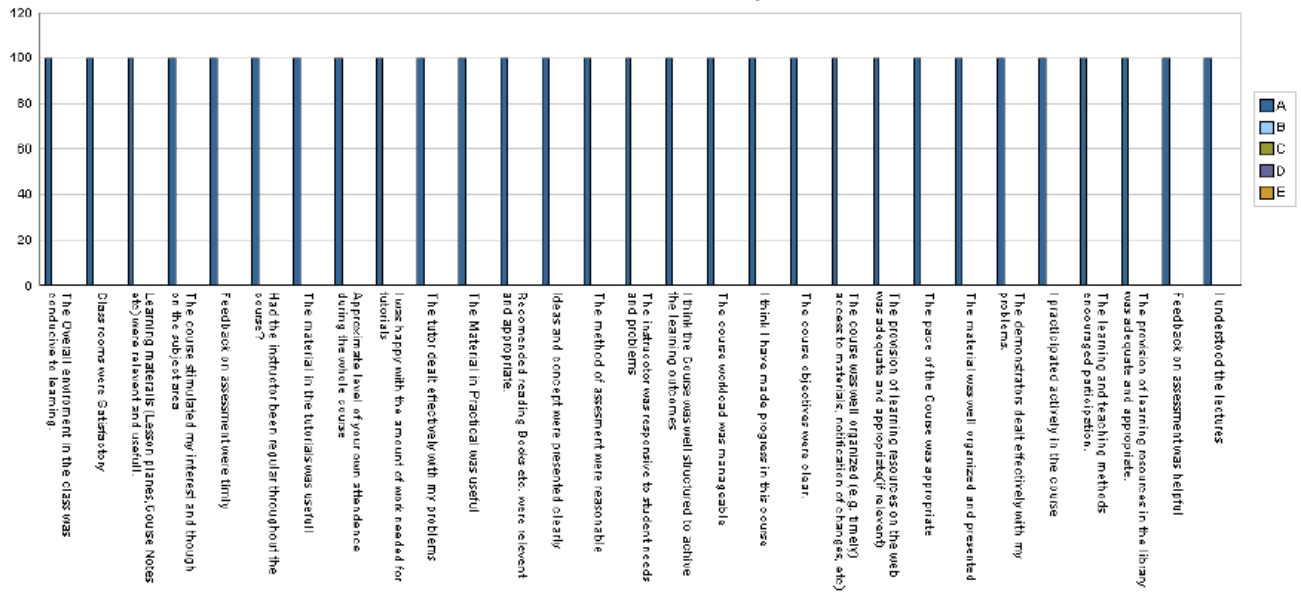


Course Name: Advances in Aquaculture

Section: B M/E: E Semester# 1

Class: M.Phil (Zoology)

Course Evaluation Graph



Faculty Course Review Survey

The evaluation revealed that the faculty is satisfied with curriculum. Questionnaire for the evaluation has been filled and analyzed. The internal evaluation was done through with mid and final term examinations for all courses offered by department. Some of the teachers suggested division of certain courses as they were lengthy.

Faculty Course Review Survey

Code	Title	Credit value	Assessment method	No. of Students	Comments on curriculum	Any Change for future in course	Semester	Grades						Teacher
								A	B	C	D	E	F	
ZOOL-715	Faunal Biodiversity of Pakistan	3(2-2)	Mid/Final Exam	21	Appropriate	Not suggested	Spring	62	26	12	0	0		Dr. M. Sajid Nadeem
ZOOL-721	Helminthology and Protozoology	3(2-2)	Mid/Final Exam	16	Appropriate	Not suggested	Fall	26	63	7	0	4		Dr. Mazhar Qayyum
ZOOL-731	Behavioral Ecology	3(3-0)	Mid/Final Exam	12	Appropriate	Not suggested	Spring	53	42	5	0	0		Dr. Amjad Rashid Kayani
ZOOL-732	Herpetology	3(2-2)	Mid/Final Exam	19	Appropriate	Not suggested	Fall	21	66	9	2	2		Dr. Muhammad Mushtaq
ZOOL-735	Advances in Aquaculture	3(3-0)	Mid/Final Exam	16	Appropriate	Not suggested	Spring	33	56	8	0	3		Dr. M. Zubair Anjum

ALUMNI SURVEY RESULTS

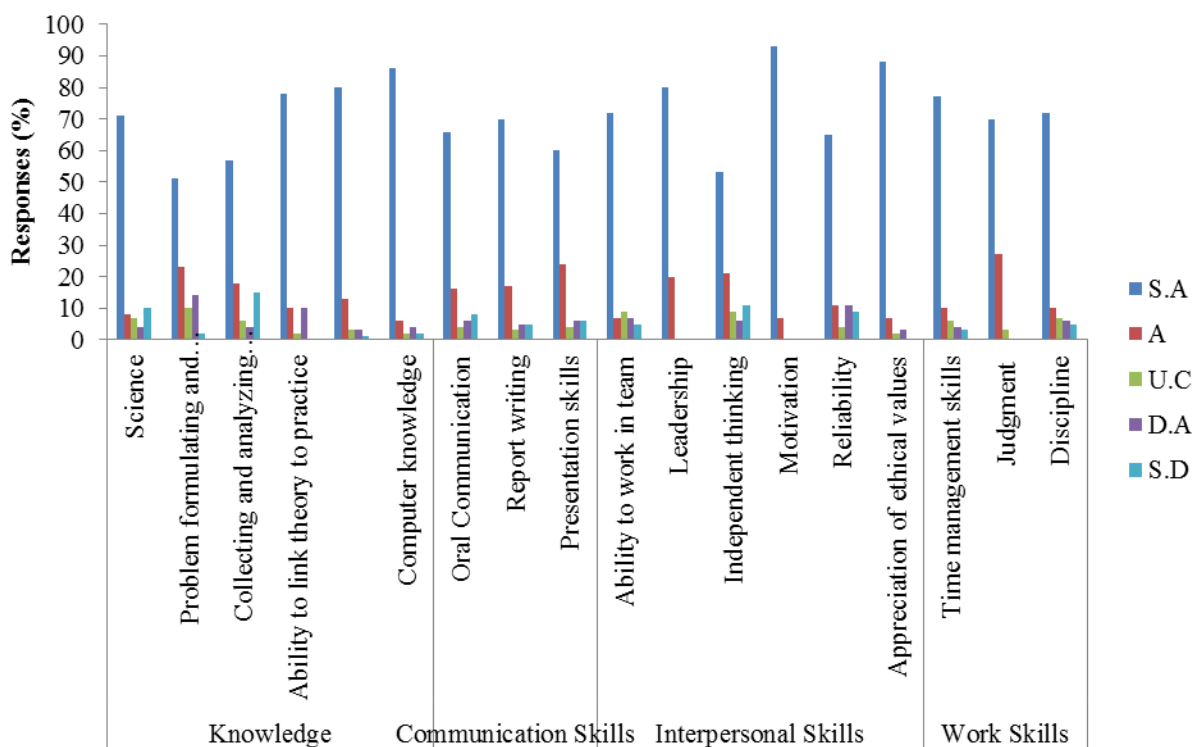
Feedback of M. Phil. students graduated was acquired through Proforma-7. Response from alumni was valuable as it not only appreciated the strengths of program but also pointed some weaknesses.

General comments:

Time table is mostly not suitable due to the unavailability of class rooms. More funding is required for general subject practicals and for student's thesis research. Laboratories are not well equipped and more facilities are required for both field work and laboratories.

Career opportunities:

Job opportunity after getting this degree is there in research laboratories, diagnostic centers, Non Governmental organizations (NGO) and in teaching etc



Key: SA=Strongly Agree, A=Agree, UC=Uncertain, D=Disagree, SD=Strongly Disagree

Alumni Survey

SURVEY OF GRADUATING STUDENTS

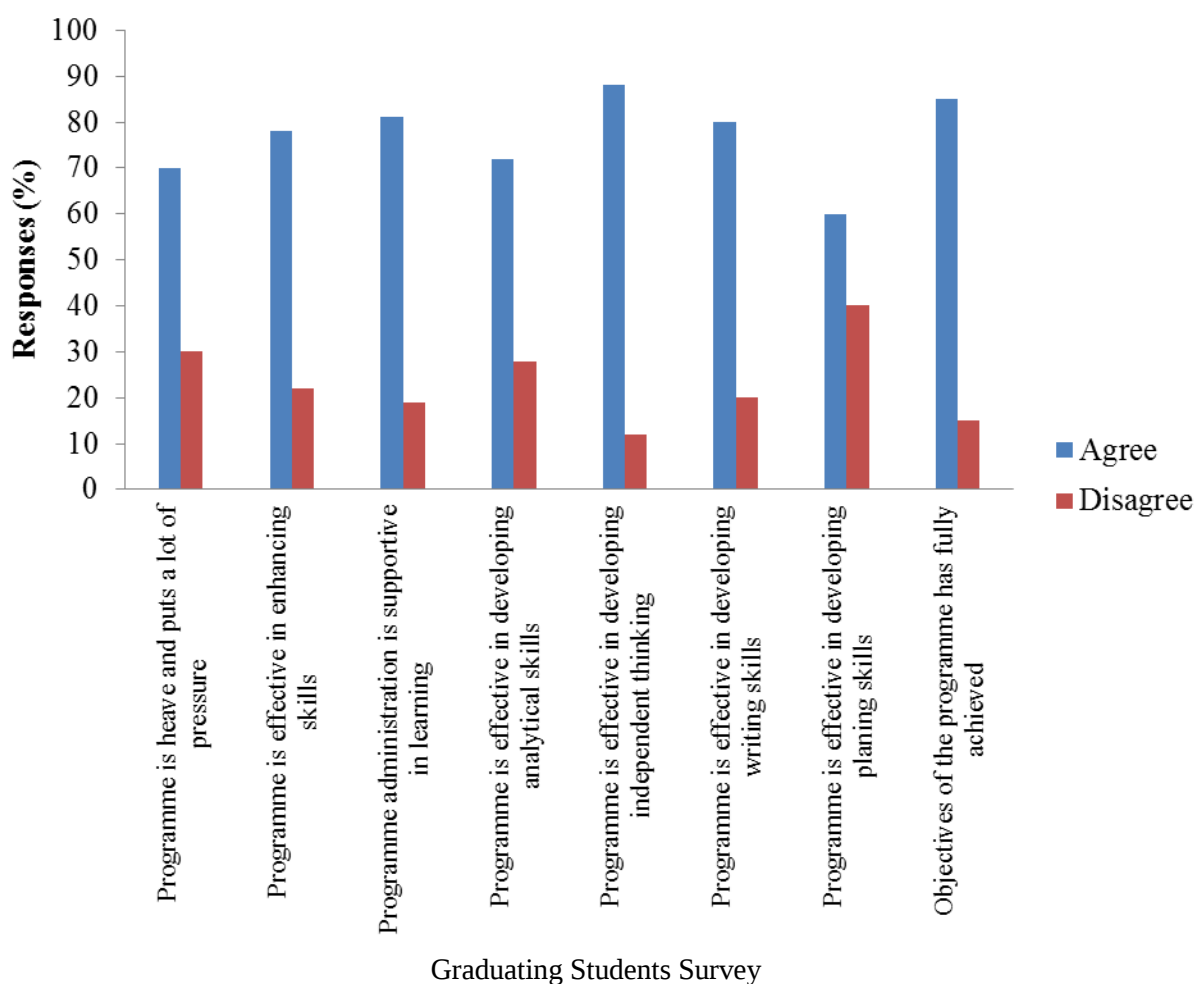
Survey of graduating students was conducted through Performa 3. Students demonstrated their satisfaction in M.phil program and found it effective in context to team work, learning, in attaining program objectives and about favorable environment. Other features of the program have also been evaluated well.

Best aspects of the Program:

- Program is beneficial and helped in improving learning abilities
- Confidence building, field work, research and writing abilities
- Improved writing skills, professional and management proficiency of wildlife , parasitology, fisheries, reproductive biology and genetics

Aspects of Program in need of improvement:

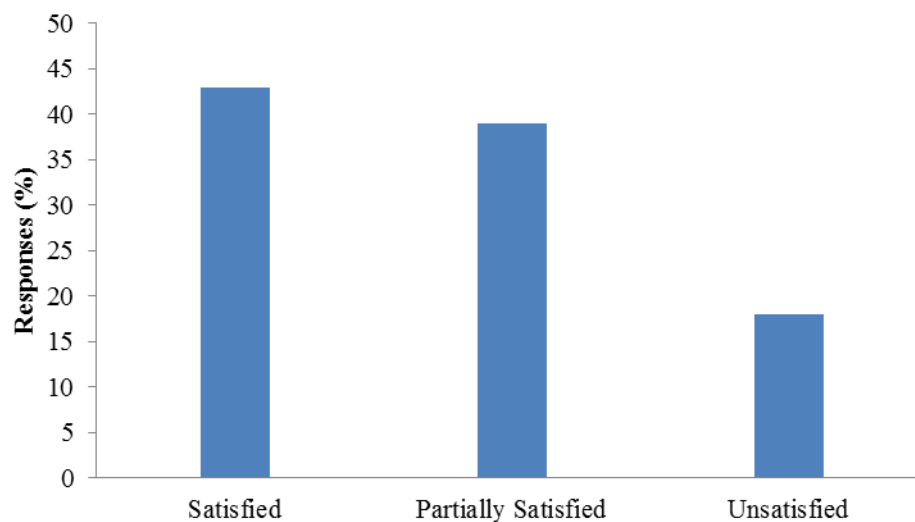
- Better infrastructure that include class rooms and well equipped laboratories
- More apparatus, research equipment/facilities in laboratories and for field
- More scholarships and fee waiver for the eligible students



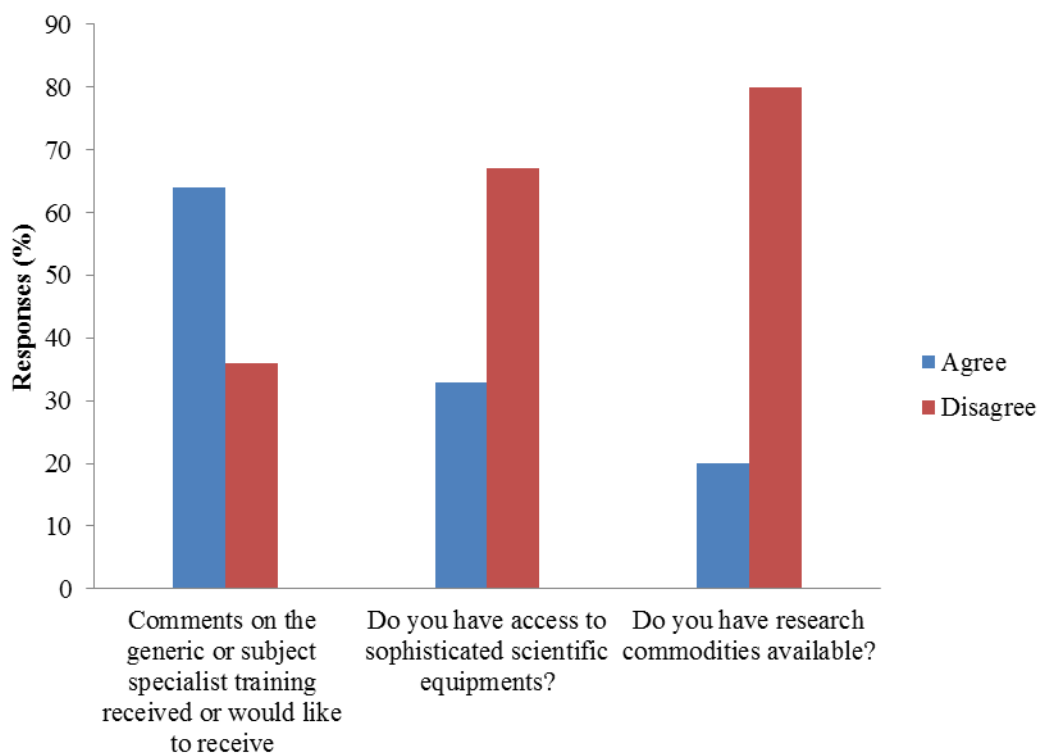
RESEARCH STUDENTS PROGRESS REVIEW

Survey of M. Phil. research student's progress review was conducted through Performa 2.

Results are given below in graphs



Level of supervision received



Response of students on Misc. issues

FACULTY SURVEY

	Dr. Abida Arshad	Dr.M. Mushtaq	Dr. Amjad Rashid	Dr. Shamim Akhtar	Dr. Zubair Anjum	Dr. Ruqia M. Baig	Dr. Mazhar Qayyum	Dr. M. Sajid Nadeem
Your mix of research, teaching and community service	V. satisfied	V. satisfied	V. satisfied	V. satisfied	Satisfied	V. satisfied	Satisfied	Satisfied
The intellectual stimulation of your work	Satisfied	V. satisfied	V. satisfied	V. satisfied	Satisfied	V. satisfied	V. satisfied	V. satisfied
Type of teaching / research you currently do	Satisfied	V. satisfied	V. satisfied	V. satisfied	Satisfied	V. satisfied	V. satisfied	V. satisfied
Your interaction with students.	Satisfied	V. satisfied	V. satisfied	Satisfied	Satisfied	Satisfied	V. satisfied	Satisfied
Cooperation you receive from colleagues	V. satisfied	Satisfied	V. satisfied	Satisfied	V. satisfied	Satisfied	Satisfied	Satisfied
The mentoring available to you.	Satisfied	Satisfied	V. satisfied	Satisfied	V. satisfied	Satisfied	Satisfied	Satisfied
Administrative support from the department	Satisfied	Satisfied	V. satisfied	V. satisfied	Satisfied	V. satisfied	Satisfied	Satisfied
Providing clarity about the faculty promotion process	Satisfied	Satisfied	V. satisfied	Satisfied	Satisfied	Satisfied	Satisfied	V. satisfied
Your prospects for advancement and progress	V. satisfied	Satisfied	V. Satisfied	Satisfied	Satisfied	Satisfied	Satisfied	Satisfied

STANDARD 1-3: The results of program's assessment and the extent to which they are used to improve the program must be documented.

There are certain short comes which were observed again and again. These are unavailability of apparatus, equipment and resources for practical's and for research. Laboratories should be well funded and university research grant to department is much needed for research activities. Moreover, museum and animal house must be a part of department. There is much need to improve facilities for practical aspects of the courses.

Major Future Improvement Plans

Teachers are submitting projects to upgrade laboratories with up to date facilities for the modern research and to expand department by the addition of facilities like museum and animal house.

STANDARD 1-4: The department must assess its overall performance periodically using quantifiable measures.

Table-1: QUANTITATIVE ASSESSMENT OF THE DEPARTMENT

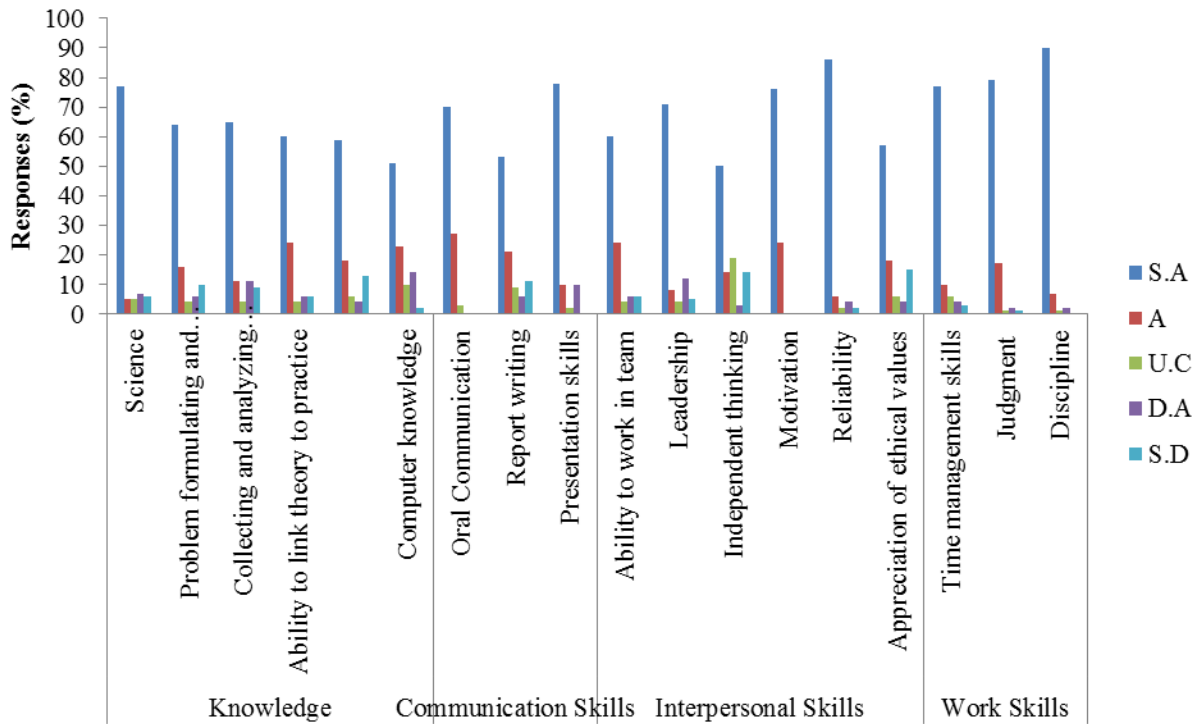
S. No.	Particulars	No.	Remarks
1	M. Sc degree awarded	~30	Every year 30 students get enrolled most of them acquire degree and join different institutes for higher degree while other got employment in various fields. Few are part of the faculty of same university.
2	M. Phil produced	75	Program started in 2007-08
4	Students: Faculty (ratio)	6:1	This faculty ratio includes Interplacement by HEC
5	Technical: non technical (ratio)	4:1	
6	Average grade point	3	

Research progress

Name of Faculty Member	Journal Publications	Conference publication	Projects
Dr. Mazhar Qayyum	8	2	0
Dr. Shamim Akhtar	36	4	1
Dr. Muhammad Sajid Nadeem	12	2	1
Dr. Amjad Rashid Kiyani	4	-	0
Dr. M. Mushtaq	8	-	0
Dr. Abida Arshad	4	1	1
Dr. M. Zubair Anjum	4	5	1
Dr. Ruqia Mehmood Baig	7	1	2
Dr. Muhammad Irfan	14	1	1

EMPLOYER'S SURVEY

The employer survey is conducted to obtain view of employers about education quality, department of Zoology is providing. This survey is to assess different skills and qualities of university graduated students which they are showing in their respective organizations. Overall the report is satisfactory and showed good organizational skills and knowledge of subject as well as good communicational and computer skills of our graduated students.



Key: SA=Strongly Agree, A=Agree, UC=Uncertain, D=Disagree, SD=Strongly Disagree

Employer's survey

SECTION 2

CRITERION-2: CURRICULUM DESIGN AND ORGANIZATION

Curriculum in department of Zoology has been designed and now revised on regular basis after approval from Board of Studies. Senior faculty members and subject specialist from other relevant departments are part of Board of Studies in Zoology Department headed by Chairman of Zoology. After board of studies it is revised by Board of Faculty and Academic council which are headed by Dean of Faculty in Board of Faculty. Academic Council is comprised of Professors, Associate Professors, Faculty Representatives and very senior subject specialists.

Degree Title:

M.Phil. Zoology

Definition of Credit Hour:

One theory lecture or two hours laboratory (practical / week) is credited as one credit hour and carries 20 marks. Duration of a semester is of 18 weeks and lectures are distributed accordingly.

Degree Plan:

M.Phil degree duration is of 4 semesters/2 years that includes 32 credit hours course work and a 10 credits research thesis.

Pre-requisites

Academic Requirements:

M.Sc. Zoology or equivalent degree from any recognized institute with at least second division or 2.5/4CGPA is required for a student to take admission.

Past academic performance and entry test marks define the merit to get admission.

Degree Requirements:

Requirement is to complete 34 credit hours (courses) to obtain degree with minimum Grade Point Average 2.50/4.00 CGPA.

Examination

In course work, student's evaluation is done by mid-term examination, assignments/quizzes and final examination. A student, who misses the mid-term examination, is not allowed a make-up examination and is awarded zero marks in that examination. In case a student does not appear in the final examination of a course, he shall be deemed to have failed in that course. In theory, weightage to each component of examination is as prescribed here under: The qualification marks for each examination is 40%. .

Mid Examination	30%
Assignments	10%
Final Examination	60%

For practical examination (if applicable) 100% is given to practical as scored final examination. A student is eligible to sit for the examination provided that he/she has attended not less than 75% of the classes in theory and practical, separately

M. Phil Zoology

Course #	Course Title	Credit Hours
ZOOL-713	Clinical Bacteriology	3(2-2)
ZOOL-734	Mammalogy	3(2-2)
ZOOL-725	Human Genetics	3(2-2)
ZOOL-720	Seminar-I	1(1-0)
BIOL-724	Conservation Biology	3(2-2)
BCH-732	Medical Nutrition Therapy	3(2-2)
BCH-734	Numerical Problems in Biochemistry	3(3-0)
BCH-735	Principles of Advanced Biochemical Techniques	3(3-0)
BIOL-725	Animal Reproductive Biology	3(2-2)
ZOOL-714	Medical Virology	3(2-2)
ZOOL-718	Applied Reproductive Physiology	3(2-2)
ZOOL-733	Ornithology	3(2-2)
ZOOL-715	Faunal Biodiversity of Pakistan	3(2-2)
ZOOL-712	Clinical Endocrinology	3(2-2)
ZOOL-719	Special Problem	1(1-0)
ZOOL-720	Seminar-II	1(1-0)
STAT-701	Experimental Statistics	3(3-0)
BCH-731	Advances in Biochemistry	3(3-0)
BCH-708	Human Physiology	3(2-2)
BCH-721	Environmental Biochemistry	3(2-2)
BCH-736	Proteomics	3(2-2)
BIOL-722	Host Parasite Interactions in Animals	3(2-2)
BIOL-723	Immunology	3(2-2)

STANDARD 2-1: The curriculum must be consistent and supports the program's documented objectives

Courses	Objectives	
	1	2
ZOOL-715	**	***
ZOOL-721	***	***
ZOOL-731	**	**
ZOOL-732	**	***
ZOOL-735	**	**
Highly satisfactory	***	
Satisfactory	**	
Non satisfactory	*	

STANDARD 2-2: ELEMENTS VS COURSES

Elements	M.Phil. Zoology/Biology Courses
Theoretical background	ZOOL-713, ZOOL-734, ZOOL-725, BIOL-724, BIOL-725, ZOOL-714, ZOOL-718, ZOOL-733, ZOOL-715, ZOOL-712, ZOOL-719, BIOL-722, BIOL-723
Problem analysis	ZOOL-719, ZOOL-720,
Solution Design	STAT-701

STANDARD 2-3:

The curriculum is designed and offered according to the requirements of HEC. There are compulsory basic and advance courses along with an applied course of statistics. Students have to take a minimum 32 credit hours courses. They have to write a thesis worth 10 credits

STANDARD 2-4:

Higher Education Commission (HEC) course work of 32 credit hours

Program	Credit hours/semester	Total Credit hours	Theory	Practical	Thesis
M. Phil.	16	32	24	8	10

STANDARD 2-5:

Courses being offered are highly informative and fulfilling the requirements but most of the courses are of basic nature and only one or two are applied.

STANDARD 2-6:

There is deficiency of information technology related courses but some activities and courses in program are useful to give basic training of computer use.

S. No.	Course No.	How applied and integrated through out the program
1	STAT-701	Use of statistical software pushes the students to learn basic use of computer
2	ZOOL-720, ZOOL-719	Seminar preparation requires the basic knowledge of computer sciences. It urges the students to learn basic use of computer. Same is the case with thesis writing
3	Synopsis and Thesis write up	

STANDARD 2-7:

Two seminars of one credit hour each are compulsory at the M. Phil. level. Moreover, students have to defend their research report. Assignments are given to M. Phil. students on specific titles (part of the

course) which are presented orally and given as written report (assignments) by the students which have increased their oral and written communication skills.

S. No.	Course No.	How applied and integrated through out the program
1	ZOOL-720	Two seminars of one credit hour each are compulsory at the M. Phil. level during course work
2	Courses presentations/assignments	During course work a presentation/assignment is obligatory for each course
3	Synopsis formation	Before commencing research in open forum
4	Thesis writing	Thesis viva to an external examination

SECTION-3

CRITERION-3: LABORATORIES AND COMPUTING FACILITIES

Laboratory Title:

1. Microbiology and Parasitology lab
2. Fishries
3. Molecular Genetics
4. Reproductive Physiology/Endocrinology
5. Wildlife & Biodiversity
6. Animal Physiology
7. General lab

Location and Area:

Faculty of Sciences, D-Block, 2nd Floor, New Academic Block and area of each laboratory is 450 square feet

Objectives:

Laboratories are used for:

1. Practical exercise and demonstrations to graduate students in their introductory and major courses
2. Research work for the Post-graduate students
3. Used for implementing the funded projects by the University, HEC, PSF, PARC and other agencies.
4. Laboratories are well specious and adequate.

Major apparatus viz equipments:

Microscopes, autoclave, incubator, deep freezer, refrigerators, laminar flow cabinet, pH meter, elective balance, slide and overhead projectors, shaker, hitter, Horizontal Gel-Electrophoresis apparatus, Centrifuge (simple and refrigerated) pipettes are present but some are out dated and out of order. However, department is in much need of, Vertical Gel-Electrophoresis apparatus, Thermocycler (PCR machine), Gel Documentation system, Spectrophotometer. Moreover, department also requires an animal house and a museum

Safety Regulations:

Safety measures are not available against fire (Extinguishers), minor hazards and accidents, injuries (First Aid Kit). However, the University maintains a Medical Dispensary for such incidents.

STANDARD-3.1: LABORATORY MANUALS:

- Laboratory manuals of each subject (Microbiology and Parasitology, Reproductive Physiology, Wildlife & Biodiversity, Animal Physiology, Genetics and Fishries) are not available. The department has no library at all. However, individual teachers have their books.

**STANDARD-3.2: SUPPORT/LABORATORY PERSONAL FOR MAINTENANCE OF
LABORATORY**

Laboratories are maintained by only one laboratory assistant (equipment, glassware, chemicals, material etc). A laboratory attendant assists the students in practical, cleaning and washing.

STANDARD-3.3: COMPUTING INFRASTRUCTURE AND FACILITIES

- **Safety arrangements:** The labs have no exhaust fan. No first aid kits/facilities have been provided in the laboratories or in department.

- ***Water & Electricity Problems:*** Laboratories often are out of water and our building has more electricity short fall as compare to other buildings in university. This irregularity of water and electricity is affecting research and practical activities in department and especially in laboratories.

SECTION-4

CRITERION 4: STUDENT SUPPORT AND ADVISING

The university organizes support programs and provide information regarding admission, scholarship schemes etc. Department in its own capacity arrange orientation and guided tours of department.

STANDARD-4.1: FREQUENCY OF COURSES

- Courses are taught as per criteria laid down by HEC.
- Courses are offered according to the scheme of study approved by Academic Council and courses are offered as per the availability and expertise of the teachers.
- Elective courses are offered according to the policy of the university.
- For postgraduate programs, a variety of courses are offered according to demand of the profession.

STANDARD-4.2: STRUCTURE OF THE COURSES

Theoretical as well as practical aspects are focused in designing the courses. Theoretical problems are explained and assignments are also given to the students. Practical are carried out in the labs as well as in the field. Field visits to related research organizations are also organized for the awareness of the students about the latest developments in the area and to stimulate them for discussion and teacher/student interaction.

- Board of Studies approved the course contents
- Faculty members interact frequently to the students to solve their problems. Students are always welcome to ask questions in class rooms and teachers are also available even after the classes.

STANDARD-4.3: GUIDANCE TO THE STUDENTS

Following steps have been taken for the guidance of the students:

1. Information about the program requirements are provided to the students through the office of the head of the department.
2. Through the personal communication of the teachers with the students
3. Students can also contact with relevant teachers whenever they face any professional problem.
4. Students can interact with the teachers/scientists in the universities or research organization according to their requirement and there is open option for the students to get the membership in the professional societies like Pakistan Zoological Society and other relevant professional societies.

SECTION-5

CRITERION-5: PROCESS CONTROL

It includes student admission, student's registration, faculty requirement activities which are dealt by various statutory bodies and the university administration.

STANDARD-5.1: PROGRAM ADMISSION CRITERIA

- The admission advertisement is given in the National Papers by the Registrar office. The criteria and rules of the admission are followed set by the University.
- PhD admission is based on the recommendations of supervisory committee.
- Admission criteria are revised every year before the announcement of admissions.

STANDARD-5.2: PROCESS OF REGISTRATION

- The student's name, after completion of the admission process, is forwarded to the Registrar Office for proper registration in the specific program. Registration numbers are issued to the students and also registered in Campus Management System (CMS).
- Students are evaluated through Mid, Final and Practical exams and through assignments
- If the students fulfill the criteria of the university they are promoted to the next semester.
- In general, the students are registered on competition bases keeping in view the academic and research standards.

STANDARD-5.3: RECRUITING PROCESS FOR FACULTY

Recruitment policy developed by the university is according to HEC rules.

Induction of all posts is done as per rule:

- Vacant and newly created positions are advertised in the National newspapers, applications are received by the Registrar office, call letters are issued to the short-listed candidates on the basis of experience, qualification, publications and other qualities/activities as per rules of the university
- The candidates are interviewed by the University Selection Board, principal and alternate candidates are selected.

- Selection of candidates is further approved by the Syndicate and then candidates are invited to join the university within a specified period.
- Induction of new candidates depends upon the number of approved vacancies.
- At present, no procedure exists for retaining highly qualified faculty members. However, the revised pay scales of structure is quite attractive
- HEC also supports appointments of highly qualified members as foreign faculty Professors, National Professors and deutes them in various departments of the university.
- HEC also supports Interim Placement Program for Fresh PhDs (IPFP), that is helping in upgrading faculty for both academic and research purpose.

STANDARD-5.4: TEACHING AND DELIVERY OF COURSE MATERIAL

- The department revises the curriculum time to time depending upon the requirements, innovations and new technology to enhance the high quality teaching.
- With the emergence of new fields, new courses are designed and included in the scheme of study
- Related course books are available in the university library, where documentation, copying and internet facilities are available.
- Some teachers also provides notes to the students
- Most of the lectures are supplemented by overhead, slides and pictures.
- Board marker teaching technique is also appreciated as it helped student teacher communication and better understanding along with multimedia and slides etc.
- All efforts are made that courses and knowledge imparted meet the objectives and outcome. The progress is regularly reviewed in the staff meetings.

STANDARD-5.5: COMPLETION OF PROGRAM REQUIREMENTS

The controller of examinations announces the date of commencement of examination. After ~20-30 days of the examinations, the controller office notifies the results of the students. The evaluation procedure consists of mid and final examinations, practical formulas,

assignments and reports, oral and technical presentations. Some courses and teachers also include marks of practical note book. Candidates who secure 80% or more marks are awarded grade A. Gold medals are awarded to the students who secure highest marks. Degrees are awarded to the students on the annual convocation that is held every year.

SECTION-6

CRITERION-6: FACULTY: Standard 6.1: Full Time Faculty

Table: 4.6

Name	Designation	Qualification	Country Awarding Degree	Date of Birth	E-mail Address
Dr. Mazhar Qayyum	Associate Professor	Ph.D.	Pakistan	7.6.1963	Mazhar_dr@yahoo.com
Dr. Shamim Akhtar	Assistant Professor	Ph. D	Pakistan	13.06.1964	sashraf1993@yahoo.com
Dr. Muhammad Sajid Nadeem	Associate Professor	Ph. D	Pakistan	04.04.1970	sajidnm@hotmail.com
Dr. Amjad Rashid Kiyani	Assistant Professor	Ph. D	UK	28-3-1966	ark120106@yahoo.co.uk
Dr. Muhammad Mushtaq	Assistant Professor	Ph. D	Pakistan	10.12.1970	mushtaq@uaar.edu.pk
Dr. M. Zubair Anjum	Assistant Professor	Ph. D	Austria	9-3-1978	zubair.anjum@uaar.edu.pk
Dr. Abida Arshad	Assistant Professor	Ph. D	China	23-3-1977	Abida.arshad6@gmail.com
Dr. Ruqia Mehmood Baig	Lecturer	Ph. D	Pakistan	7-8-1983	Dr.ruqia@uaar.edu.pk
Mr. Muhammad Irfan	Lecturer	Ph. D. student	Pakistan	16.02.1984	Muhammadirfan11@gmail.com

Table.4.7 Faculty Distribution by Program Areas in Zoology/Biology

Program area of specialization	Courses in the area and average number sections per year	Number of faculty members in each area	Number of faculty with Ph. D degree
Microbiology/Parasitology	7	2	2
Wildlife	6	2	2
Biodiversity	2	1	1
Reproductive physiology	2	1	1
Endocrinology/Genetics	4	3	2

STANDARD 6.2: EFFECTIVE PROGRAMS FOR FACULTY DEVELOPMENT

1. Professional training and availability of adequate research and academic facilities are not provided according to the faculty members
2. Library facility is not available in the department

STANDARD-6.3: FACULTY MEMBER MOTIVATION

- Time to time provision of enthusiasm to the young faculty by the senior faculty members.

SECTION-7

CRITERION-7: INSTITUTIONAL FACILITIES

INSTITUTIONAL FACILITIES

The institution must have the infrastructure to support new trends in learning

- University research grant to department and laboratories for practical and research activity is not sufficient.
- Research grant should be provided to department s per student per .annum/ semester.
- Insufficient facilities regarding the infrastructure to support new trends in learning or prevalent.

The library must possess an up-to-date technical collection relevant to the program and must be adequately staffed with professional personal.

- Insufficient offices for staff.
- Recommended books, relevant journals of the programs are not available to the students.
- However, this aspect needs to be strengthening of discipline.

Class rooms must be adequately equipped and offices must be adequate to enable faculty to carry out their responsibilities.

STANDARD-7.1: INFRASTRUCTURE

The faculty doesn't have computers to access internet and to e-library which is very helpful for the high quality education and producing research of international standard.

The department has the following shortcomings/problems:

- Telephone sets/connections are not present.
- Offices and classrooms are not comfortable especillay in summer.

STANDARD-7.2: LIBRARY FACILITIES

The university Central Library has very limited number of books, journals and periodicals. It's a small library in term of space and facilities with no catalogue systems. It does not meet the standards of a university library. Department itself does not have a library.

STANDARD-7.3: CLASS ROOM AND FACULTY OFFICES

Two class rooms are available without any multimedia. Two to three teachers are sharing rooms. Common room for students is also missing. No heater and air conditioner is installed in class rooms, labs and offices.

SECTION-8

CRITERION-8: INSTITUTIONAL SUPPORT

The university administration is trying to provide all the possible facilities to the departments and has been struggling hard for the up gradation of departments and establishing new faculties and institutes. The university is also trying to attract highly qualified faculty.

INTSTITUTIONAL SUPPORT:

- Faculty offices are inadequate and therefore two or three teachers have one office. The department at present avails all the human resources assigned

STANDARD-8-1: SUPPORT AND FINANCIAL RESOURCES

The department has limited funds and Individual research grants for students and faculty are insufficient to support the departmental research activities. There is a dire need for increasing the financial resources allocated to the department to establish a library, animal house, laboratories and computer facilities

STANDARD-8-2: HIGH QUALITY RESEARCH SCHOLARS

Research Assistants	Ph.D. Students
3	25

Faculty to Ph.D. student's ratio is 1:2

STANDARD-8-3: FINANCIAL RESOURCES

The total budget of the Department of Zoology and Biology does not fulfills the departmental needs, particularly for the purchase of equipment, chemicals etc.

SUMMARY

The M. Phil. Zoology programme at Department of Zoology was started in 2006. The department offers merit based admissions annually. The candidate must have completed 16 years of education in Zoology, and appeared and passed the admission test. The program aims to train the students in advanced as well as classical aspects of Zoology. The students get admission in the program are given opportunity to specialize in the field of their own interest. The students are pushed to learn solution of theoretical as well as practical problems in the science particularly in the Zoology. Graduates acquire a general biological and scientific background as well as gain experience in problem solving and develop the communication, numerical and computer skills required for a wide range of careers. The department and university are keen to maintain the quality of education and research. In this regard, the performance of departmental staff and evaluation of programs run by department is done on semester basis. The survey of course evaluation, teacher evaluation, alumni survey, research/graduating students surveys and faculty survey have been done. The data were gathered and presented in the form of graphs and tables. According to the data, students are satisfied with the teachers performance in the class and fair marking of papers. They are also satisfied with the level of knowledge of the teachers. The M.Phil. Zoology students are satisfied with workload and value of knowledge provided to them. However, department has limited budget and equipments for research purposes. The performance of the department may be further improved considering provision of equipments and improvement of budget allocated to the department.

COURSES OFFERED

M. Phil Zoology

Course #	Course Title	Credit Hours
ZOOL-713	Clinical Bacteriology	3(2-2)
ZOOL-734	Mammalogy	3(2-2)
ZOOL-725	Human Genetics	3(2-2)
ZOOL-720	Seminar-I	1(1-0)
BIOL-724	Conservation Biology	3(2-2)
BCH-732	Medical Nutrition Therapy	3(2-2)
BCH-734	Numerical Problems in Biochemistry	3(3-0)
BCH-735	Principles of Advanced Biochemical Techniques	3(3-0)
BIOL-725	Animal Reproductive Biology	3(2-2)
ZOOL-714	Medical Virology	3(2-2)
ZOOL-718	Applied Reproductive Physiology	3(2-2)
ZOOL-733	Ornithology	3(2-2)
ZOOL-715	Faunal Biodiversity of Pakistan	3(2-2)
ZOOL-712	Clinical Endocrinology	3(2-2)
ZOOL-719	Special Problem	1(1-0)
ZOOL-720	Seminar-II	1(1-0)
STAT-701	Experimental Statistics	3(3-0)
BCH-731	Advances in Biochemistry	3(3-0)
BCH-708	Human Physiology	3(2-2)
BCH-721	Environmental Biochemistry	3(2-2)
BCH-736	Proteomics	3(2-2)
BIOL-722	Host Parasite Interactions in Animals	3(2-2)
BIOL-723	Immunology	3(2-2)

FACULTY RESUMES

1. CURRICULUM VITAE

1. Personal Data

Name: Dr. Shamim Akhtar

Present Address: Professor,
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Telephone:

E-mail: sashraf1993@gmail.com

2. Academic Qualification

1.	Ph.D. (Zoology)	University of Arid Agriculture, Rawalpindi	2006
2	M.Phil. (Zoology)	University of Agriculture, Faisalabad.	1991
3	M.Sc. (Zoology)	University of Agriculture, Faisalabad.	1987
4	B.Sc (Zool, Bot, Chem)	University of the Punjab, Lahore	1985
	Post Doctoral Fellowship :	Commonwealth Post Doctoral Fellowship at “The Royal Veterinary College, University of London, UK. 2009	

3. Area of Specialization: Reproductive Physiology

4. HEC approved supervisor

5. Professional Experience (Research and Teaching): 15 years

6. Fellowship/Membership of Professional Associations/Societies: 02

7. Research Projects; Completed=06; ongoing=01

8. Participation in Conferences/Workshops: 20

9. Supervision of Post-Graduate Theses: a) Ph.D.:1; b) M.Phil.: 23; M.Sc. 20.

10: International collaborations = Three institutes/universities

11. Publications

Papers Published in Peer Reviewed Journals: 36

Publications during reported period (2018-2020)

PUBLICAIONS IN JOURNALS (INTERNATIONAL)

1. R. Ishaq, M. S. Ansari, B. A. Rakha, S. Qadeer, S. Akhter. 2019. Evaluation of Enrofloxacin for Use in Cryopreservation of Zebu Bull (*Bosindicus*) Semen. *BIOPRESERVATION AND BIOBANKING*. DOI: 10.1089/bio.2018.0133
2. Ansari, M.S., B. A. Rakha, S. Akhter, E. Blesbois, and J. Santiago-Moreno. 2019. Effect of Cryopreservation on Lipid Peroxidation, Antioxidant Potential, Chromatin Integrity, and Mitochondrial Activity of Indian Red Jungle Fowl (*Gallus gallusmurghi*) Semen. *BIOPRESERVATION AND BIOBANKING*. DOI: 10.1089/bio.2018.0111
3. Rakha, B. A., M. S. Ansari, S. Akhter, S. Moreno, E. Blesbois. 2018. Use of dimethylsulfoxide for semen cryopreservation of Indian red jungle fowl (*Gallus gallusmurghi*). *Theriogenology*, 122:61-67.
4. Akhter, S., B.A. Rakha, M.S. Ansari, S. Iqbal, M. Khalid. 2018. Evaluation of pigeon egg yolk for post thaw quality, enzyme leakage and fertility of buffalo (*Bubalusbubalis*) bull spermatozoa. *Theriogenology*, 119:137-142
5. Rakha, B. A., M. S. Ansari, ShamimAkhter, E. Blesbois. 2018. Cryoprotectant effects of egg yolk on Indian red jungle fowl (*Gallus gallusmurghi*) sperm. *Theriogenology*. 119:150-155
6. Awan, M. A., S. Akhter A. U. Husna, M. S. Ansari, B. A. Rakha, A. Azam, S. Qadeer. 2018. Antioxidant activity of *Nigella sativa* Seeds AqueousExtract and its use for Cryopreservation of Buffalo Spermatozoa. *Andrologia*. DOI: 10.1111/and.13020
7. Rakha, B. A., M. S. Ansari, ShamimAkhter, E. Blesbois. 2018. Cryoprotective effect of glycerol concentrations on Indian red jungle fowl (*Gallus gallusmurghi*) spermatozoa. *Avian Biology Research*. 11: 80-88.
8. Khan, M.Q., M. Z. Anjum, S. Akhter, I. Khattak, M. Adnan & A. Ali. Diet Composition and Seasonal Fluctuations in the Feeding Habit of Snow Barbel (*Schizothoraxplagiostomus*) in River Indus, Pakistan. *Acta Scientiae Veterinariae*, 2018. 46: 1550.
9. Shafique, R.H., S. Akhter, S. Abbas, M. Ismail. 2018. Sensitivity to house dust mite allergens and prevalence of allergy causing house dust mite species in Pothwar, Pakistan. *ExpApplAcarol* ,74:415-426
10. Majeed Z. Ajab Z, Zuberi A, Akther S, Muhammad A. 2018. Meristic variations and skeletal deformities in natural population of mahseer fish, *Tor putitora* (Hamilton, 1822), *Iranian Journal of Fisheries Sciences*, 17: 208-216.

2. CURRICULUM VITAE

1. Personal Data

Name: Dr. Mazhar Qayyum

Present Address: Professor,
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Telephone 051-9062267

E-mail mazhar_dr@yahoo.com

2. Academic Qualification

DEGREE	YEAR	SUBJECTS	INSTITUTIONS
Post Doctorate	2003	Parasitology	Louisiana State University, USA
Ph.D	1997	Parasitology	Quaid-I-Azam University, Islamabad, Pakistan
M.Phil	1991	Parasitology	Quaid-I-Azam University, Islamabad, Pakistan
M.Sc	1989	Biology (Animal Sciences)	Quaid-I-Azam University (Animal Sciences), Islamabad, Pakistan

3. Area of Specialization: Parasitology

4. HEC approved supervisor

5. Professional Experience (Research and Teaching): 19 years

6. Fellowship/Membership of Professional Associations/Societies: 03

7. Research Projects; Completed=04

8. Participation in Conferences/Workshops: 20

9. Supervision of Post-Graduate Theses: a) Ph.D.:10; b) M.Phil.: 23.; M. Sc. 13

10. Publications

Papers Published in Peer Reviewed Journals: 8

Publications during reported period (2018-2020)

KIRAN AFSHAN, SARWAT JAHAN AND MAZHAR QAYYUM. 2017. Assessing the Validity of Fasciola hepatica ELISA Test for Immunodiagnosis of Small Ruminant Fasciolosis in Pothwar Region, Pakistan. Pakistan J. Zoology. 49 (2): 1-5.

REHANA BIBI, KIRAN AFSHAN, IMTIAZ AHMAD KHAN, ZUBARIA IQBAL, AMJAD RASHID KAYAN , MUHAMMAD MUSHTAQ, MUHAMMAD IRFAN, MAZHAR QAYYUM AND MOHAMMAD FAROOQUE HASSAN. 2017. Phenotyping and Prevalence of *Haemonchus contortus* (Nematoda: Trichostrongylidae) in Ruminants from Endemic Areas of Pakistan: Influence of Host Species and Geographical Area on Phenotypic Traits of Worms. Pakistan. Pak. Vet. J. 37(2): 170-174. (IF=1.3).

SADAF IJAZ MALIK, KIRAN AFSHAN AND MAZHAR QAYYUM. 2017. Phenotyping of Amphistomes, and Pathological, Hematological and Bile Biochemical Response to *Gigantocotyle explanatum* Infection in Buffaloes. Pakistan J. Zoology. 49 (2): 979-987.

MISBAH RIAZ, KAISER MANSOOR, MALEEHA AKRAM, MUHAMMAD ISMAIL, PARVEEN AKHTAR, SHAKEEL MIRZA, MAZHAR QAYYUM, AFZAAL AHMED NASEEM, FAHEEM TAHIR AND SYED SHAKEEL RAZA RIZVI. 2017. A novel mutation Ser34Phe in GNRHR causes hypogonadotrophic hypogonadism during pubertal development in boys. Pakistan J. Zoology. 49 (1): 211-217.

AFZAAL AHMAD NASEEM, MALEEHA AKRAM, SARWAT JAHAN, KIRAN AFSHAN, ZUBARIA IQBAL, FAHEEM TAHIR, MAZHAR QAYYUM AND SYED SHAKEEL RAZA RIZVI. 2017. Age and developmental stage dependent changes in plasma concentrations of growth hormone and testosterone and linear growth velocity in boys between the age of 1 and 20 years. Pakistan J. Zoology. 49 (1): 8-12

ULFAT IKHLAK, MUHAMMAD IRFAN, SHAHZAD ALI, ASFA ASHRAF, SHIWEI XIAO, MAZHAR QAYYUM. 2016. Prevalence of Dengue in Students of Arid Agriculture University Rawalpindi. PSM Microbiol., 01(2): 62-65

IFTIKHAR AHMAD, KIRAN AFSHAN, MUHAMMAD RAMZAN, SIKANDER HAYAT, SYED SHAKEEL RAZA RIZVI AND MAZHAR QAYYUM. 2016. Effect of water quality parameters on isopod parasites *Alitropistypus* (Aegidae) of ectoderms in Chashmalake, Pakistan. Pakistan J. Zoology. 48(3): 769-779.

MAJID MAHMOOD, ABIDA RAZA, MUHAMMAD ASIM, MAZHAR QAYYUM, NASIB ZAMAN, AZRA KHANUM AND MIRZA AZHAR BEG. 2016. Analysis of complete and partial genome sequences of Hepatitis B virus and determination of its genotype and sub-genotypes from Pakistan. Pakistan J. zoology. 48(3): 747-753.

RAFIQUE S., SIDDIQUE, N., MAZHAR QAYYUM, ABBAS, M. A., ALI, A., YASEEN, S AND NAEEM K., 2015. In Ovo vaccination against avian influenza virus subtype H9N2. Pakistan Vet. J., 35 (3): 299-302.

SAIRA, M., K. AFSHAN, I. A. KHAN, S. IRUM, I. Z. QURESHI, S. S. R. RIZVI, M. MUKHTAR, M. MUSHTAQ, Z. IQBAL AND MAZHAR QAYYUM, 2015. Serological and

Coprological Studies of Bovine Fasciolosis in the Pothwar Region, Pakistan. Pak. Vet. J. 35(2): 178-182. (IF=1.3).

3. CURRICULUM VITAE

1. Personal Data

Name: Dr. Muhammad Sajid Nadeem

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Department of Zoology, Pir Mehr Ali Shah Arid Agriculture University,
Murree road, Rawalpindi, Pakistan.

Telephone 0300-8539455

E-mail sajidnm@uaar.edu.pk

2. Academic Qualification

- Ph. D. in Zoology from University of the Punjab, specializing in wildlife. (Year 2005)
Thesis: Ecology of Houbara Bustard (*Chlamydotis undulata macqueenii*) in Punjab Nag Valley (Balochistan) and Uzbekistan.
- Master of Science in Zoology from University of The Punjab, specializing in wildlife research and fieldwork (year 1994).
Thesis: Behavioural patterns of Blue Peafowl (*Pavo cristatus*) in Changa Manga Wildlife Sanctuary.
- Bachelor of Science with Botany, Geography and Zoology from Islamia University Bahawalpur. (Year 1990)

3. Area of Specialization: Wildlife / ecology / conservation

4. HEC approved supervisor

5. Professional Experience (Research and Teaching): 15 years

6. Fellowship/Membership of Professional Associations/Societies: 05

7. Research Projects; Completed=02; ongoing=01

8. Participation in Conferences/Workshops: 23

9. Supervision of Post-Graduate Theses: a) Ph.D.:3; b)M.Phil.: 17.

10. Publications

a. Papers Published in Peer Reviewed Journals: 12

Publications during reported period (2018-2020)

1. Anwar, M. B; Nadeem, M. S; Shah, S.I; Kayani, A. R; and Mushtaq, M. 2012. A Note on the diet of Indian Wolf (*Canis lupus*) in Baltistan, Pakistan. Pak. J. Zool. 44(2):588-591.
2. Anwar, M.B; Jackson, R; Nadeem, M. S; Janecka, J. E; Hussain, S; Beg, M. A; Muhammad, G. and Qayyum, M. 2011. Food Habits of Snow Leopard *Panthera unica*

- (Schreber, 1775) in Baltistan, Northern Pakistan. *European Journal of Wildlife Research*. 57 (5): 1077-1083.
3. Bibi, S; Nadeem, M. S; Anwar, M. B; Shah, S. I; Kayani, A. R; Mushtaq, M; Beg, M. A; and Mahmood, T. 2019. First record of *Mus cookii* (Cook's Mouse) from Pothwar, Pakistan; A probable case of range extension?. *Mammalia*, 83(2): 198-202
 4. Bibi, S; Nadeem, M. S; Wiewel, A. S; Beg, M. A; Hameed, K; Jabeen, M; and Raja, G. K. 2017. Mitochondrial Genetic Diversity and Phylogeography of *Mus musculus castaneus* in Northern Punjab, Pakistan. *Zoological Science* 35 (6): 490-497
 5. Irshad, N; Mahmood, T; Hussain, R. and Nadeem, M. S. 2015. Distribution, abundance and diet of Indian Pangolin (*Manis crassicaudata*) *Animal Biology*, 65(1):57-71.
 6. Nadeem, M. S; Imran, S. M. K; Mahmood, T; Kayani, A. R; and Shah, S. I. 2012. A Comparative Study of the Diets of Barn Owl (*Tyto alba*) and Spotted Owlet (*Athene brama*) Inhabiting Ahmadpur East, Southern Punjab, Pakistan. *Animal Biology*, 62(1): 13-28.
 7. Nadeem, M. S; Mahmood, T; and Mahmood-ul-Hassan, M. 2014. Breeding success of Stone Curlew *Burhinus oedicnemus* in Nag Valley (1999-2001), Kharan, Pakistan. *Turk. J. Zool.* 38(4): 510-514.
 8. Nadeem, M. S; Naz, R; Shah, S. I; Beg, M. A; Kayani, A. R; Mushtaq, M; and Mahmood, T. 2012. Season and locality related changes in the diet of Asiatic jackal (*Canis aureus*) in Potohar, Pakistan. *Turk. J. Zool.* 36(6):798-805.
 9. Nighat, S; Nadeem, M. S; Shah, S. I; Bhati, R.Z; Akhter, N; Mahmood, T; Aihetasham, A. Asif, M. and Javid, A. 2019. Estimation of Heavy Metals (Cd, Cu, Pb, Zn) from six species of Vesper Bats. *J. Anim. Plant Sci.* 29 (2):619-624.
 10. Zangi, I; Mahmood, T; Akrim, F; and Nadeem, M. S; 2019. Spatial distribution and Population estimates of three vulture species in and around Pir Lasura National Park, north-eastern Himalayan region, Pakistan. *J. Raptor Res.* 53(2): 164-171.

4. CURRICULUM VITAE

1. Personal Data

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2. Academic Qualification

- **Ph.D.** (Zoology) 2006 The University of Reading, UK
- **M.Sc.** (Zoology) 1988 University of Agriculture, Faisalabad
(Marks obtained 751 out of 920; 83%; **Ist Div.; CGPA 3.93**)
- **B.Sc.** (Zoology, Botany & Geography) 1985 Govt. Postgraduate College Jhelum,
The University of Punjab, Lahore
(Marks obtained 496 out of 800; 62%; **Ist Div.**)

3. Area of Specialization: Animal ecology, behavior and reproductive biology

4. HEC approved supervisor: Yes

5. Professional Experience (Research and Teaching): 25 years

6. Fellowship/Membership of Professional Associations/Societies: 01

7. Research Projects; Completed=02

8. Participation in Conferences/Workshops: 06

9. Supervision of Post-Graduate Theses: a) Ph.D.:2 (in progress); b) M .Phil.: 08.

Distinctions:

- **University Distinction:** Stood first in the order of merit among all students who qualified for M.Sc. Zoology during calendar year 1988, The University of Agriculture, Faisalabad

- **University Merit Scholarship**, The University of Agriculture Faisalabad, 1986-87 and 1987-88
- **TROSS Scholarship** from Ministry of Science & Technology, Government of Pakistan (2001) for PhD study in UK

10. Publications

Papers Published in Peer Reviewed Journals:

2

Publications during reported period (2018-2020)

1. Ahmad, N., Khan, I.A., Iqbal, Z., Naseem, A.A., Kayani, A.R., Afshan, K. and Qayyum, M. 2019. Seroepidemiology of toxoplasmosis in human population with reference to its zoonotic potential in Sub-Tropical areas of Pakistan. Pak. Vet. J. 39(2): 211-215.
2. Bibi, S., Nadeem, M.S., Anwar, M.B., Shah, S.I., Kayani, A.R., Mushtraq, M., Beg, M.A. and Mehmood, T. 2018. First record of *Mus cookii* (Cook's mouse) from Pothwar, Pakistan: a probable case of range extension. Mammalia

5. CURRICULUM VITAE

1. Personal Data

Name: Dr. Muhammad Mushtaq

Present Address: Assistant Professor

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Murree road, Rawalpindi, Pakistan.

E-mail: mushtaq@uaar.edu.pk

2. Academic Qualification

DEGREE	YEAR	SUBJECTS	INSTITUTIONS
Ph.D	2009	Zoology	Pir Mehr Ali Shah Arid Agriculture University, Murree road, Rawalpindi
M.Sc	1995	Zoology	University of the Punjab

3. Area of Specialization: Pest control

4. Professional Experience (Research and Teaching): 21 years

5. Research Projects; Completed=01

6. Participation in Conferences/Workshops: 2

9. Supervision of Post-Graduate Theses: a) M.Phil.: 12 b) 1

10. Publications

Papers Published in Peer Reviewed Journals: 8

Publications during reported period (2018-2020)

1. Bibi, S., M. S. Nadeem, M. B. Anwar, S. I. Shah, A. R. Kayani, M. Mushtaq, M. A. Beg and T. Mahmood. 2019. First Record of Mus cookie (Cook's mouse) from Pothwar, Pakistan: A Probable Case of Range Extension? *Mammalia*. 83(2): 198-202. (IF = 0.714)
2. Fiaz, M., K. Munawar, M. Mushtaq, M. Ahmad, M. A. Chaudhry, M. Aslam, T. Ahamd and Nasrullah. 2017. Evaluating Varying Calf Milk Replacers on Optimum Growth Performance in Salt Range Lambs. *Pakistan J. Zool.* 49(5): 1925-1928. (IF: 0.547)
3. Khanam, S. M. Mushtaq, A. R. Kayani, M. S. Nadeem and M. A. Beg. 2017. Small Mammal Community Composition and Abundance in Rural Human Habitations of Pothwar, Pakistan. *Trop. Ecol.* 58(3): 515-524.
4. Khanam, S. M. Mushtaq, M. S. Nadeem and A. R. Kayani 2017. Population Ecology of the House Mouse (*Mus musculus*) in Rural Human Habitations of Pothwar, Pakistan. *Zool. Ecol.* 27(2): 106-113.

5. Sami-ur-Rehman, S. M. F. Nasir, M. Naeem, A.Mehmood and M. Mushtaq. 2017. Fauna of *Culex* (Culicidae: Diptera) mosquitoes in tehsil Pind Dadan Khan, Jhelum, Punjab, Pakistan. *Int. J. Mosq. Res.* 4(5): 28-31.
6. Akber, M., M. Mushtaq, M. S. Nadeem, A. R. Kayani and N. Nisa. 2017. Reproductive Patterns of the Norway Rat (*Rattus norvegicus*) in Urban Rawalpindi, Pakistan. *Pakistan. J. Zool.* 49(3): 1131--1134. (IF: 0.547)

6. CURRICULUM VITAE

1. Personal Data

Name: Dr. Muhammad Zubair Anjum

Present Address: Assistant Professor,
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2. Academic Qualification

Ph.D. _ Ecology (2009)
Institute of Zoology, Department of Integrative Biology and Biodiversity Research.
Universität für Bodenkultur Wien, Austria.

M.Sc. _ Zoology (2004)
University of Agriculture, Faisalabad, Pakistan.

B.Sc. _ Zoology, Botany & Geography (2002)
University of Punjab, Lahore, Pakistan.

3. Area of Specialization: Fisheries / Ecology

4. HEC approved supervisor

5. Professional Experience (Research and Teaching): 07 years

6. Fellowship/Membership of Professional Associations/Societies: 02

7. Research Projects; Completed=03; ongoing=01

8. Participation in Conferences/Workshops: 14

9. Supervision of Post-Graduate Theses: a) M.Phil: 14.

10. Publications = 08 Abstract = 05

1. Abid Ali, Muhammad Qayash Khan, Muhammad Zubair Anjum, Muhammad Adnan, Abbas khan, Sher Zaman Safi, Hafsa Zahid, Javed Nawab, Muhammad Ishaq Ali Shah and Atif Kamil (2020) Genetic diversity of Schizothorax, Tor, and Mystus spp. in Khyber Pakhtunkhwa, Pakistan: Species of economic importance. Pakistan Journal of Zoology 53(3): 1099-1109.
2. Daniel S. Karp, Rebecca Chaplin-Kramer, Timothy D. Meehan [et al., including Muhammad Zubair Anjum] (2018) Crop pests and predators exhibit inconsistent responses to surrounding landscape composition. PNAS Latest Articles 155 (33): E7863- E7870.
3. Emily A. Martin, Matteo Dainese, Yann Clough [et al., including Muhammad Zubair Anjum] (2019) The interplay of landscape composition and configuration: new pathways to

manage functional biodiversity and agroecosystem services across Europe. *Ecology Letters* 22: 1083-1094.

4. Farman Ali, Muhammad Qayash Khan, Muhammad Zubair Anjum and Irfan Khattak. (2018) Toxic effect of Atrazine herbicide on the hematological indices of Snow Carp (*Schizothorax plagiostomus*): An indigenous fish species of economic importance. *Fresenius Environmental Bulletin* 27(5): 3075-3080.
5. Kalim Ullah, Arslan Emmanuel and Muhammad Zubair Anjum (2018) Effect of stocking density on growth performance of Indus Mahseer (*Tor macrolepis*). *International Journal of Fisheries and Aquatic Studies* 6 (3): 49-52.
6. Muhammad Qayash Khan, Muhammad Zubair Anjum, Shamim Akhter, Irfan Khattak, Muhammad Adnan and Abid Ali (2018) Diet composition and seasonal fluctuations in the feeding habit of Snow Barbel (*Schizothorax plagiostomus*) in River Indus, Pakistan. *Acta Scientiae Veterinariae* 46: 1550.
7. Pasha, R.H., M. Z. Anjum, I. Ullah, M.A. Khan, A. Ali, S. Rehman, S. Batool and A. Emmanuel. (2019). Seasonal variation in the microscopic anatomy of gonads and gonadosmotic index of *Clupisoma garua*. *Pakistan Journal of Agricultural Research*, 32(4):670-674.
8. Sana Urooj, Aroosa Qayyum, Muhammad Arfan Hadyait, Shaista Razzaq, Dr. Zubair Anjum (2018) Comparison of Spawning Response of Silver carp (*Hypophthalmichthys molitrix*) and Grass carp (*Ctenopharyngodon idella*). *International Journal of Research* 5 (22): 302-306.

7.CURRICULUM VITAE

1. Personal Data

Name: Dr. Abida Arshad

Present Address: Assistant Professor,
Department of Zoology, Pir Mehr Ali Shah Arid Agriculture University,
Murree road, Rawalpindi, Pakistan.

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2. Academic Qualification

DEGREE	YEAR	SUBJECTS	INSTITUTIONS
Ph.D	2012	Neurobiology	Quaid-I-Azam University, Islamabad, Pakistan
M.Sc	2000	Zoology	Quaid-I-Azam University (Animal Sciences), Islamabad, Pakistan

3. Area of Specialization: Neurobiology

4. HEC approved supervisor

5. Professional Experience (Research and Teaching): 3 years

7. Research Projects; Completed=02

8. Participation in Conferences/Workshops: 2

9. Supervision of Post-Graduate Theses: a) M.Phil.: 5.

10. Publications

Papers Published in Peer Reviewed Journals:

4

Publications during reported period (2018-2020)

1. Ahmad Farooq, Usman Waheed, Hasan Abbas Zaheer, Abdul Rauf, Abida Arshad, and Muhammad Arshad. Incidence of Hepatitis B and C Viruses in Thalassaemia Major Patients. Pakistan Journal of Zoology. (2018) 50(3), 1-4.
2. Feroz Khan, Abida Arshad, Ayesha Isani Majeed, Asmat Ullah, Wasim Ahmad. A novel frameshift variant in BHLHA9 underlies mesoaxial synostotic syndactyly associated with postaxial polydactyly. European Journal of Medical Genetics (2019) 62(8), 103688.
3. Muhammad Hassan Raza, Kamni Gul, Abida Arshad, Naveeda Riaz, Usman Waheed, Abdul Rauf, Fahad Aldakheel, Shatha Alduraywish, Maqbool Ur Rehman, Muhammad Abdullah, Muhammad Arshad. Microbiota in cancer development and treatment. Journal of Cancer Research and Clinical Oncology (2019) 145(1), 49-63.

4. Waheed U, Arshad M, Sultan S, Saeed M, Arshad A, Irfan SM, Zaheer HA. Iron deficiency and iron deficiency anemia in blood donors at a tertiary care hospital in Islamabad, Pakistan. *Global Journal of Transfusion Medicine* (2018); 3: 17-20.

8.CURRICULUM VITAE

1. Personal Data

Name: Dr. Ruqia Mehmood Baig

Present Address: Lecturer

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2. Academic Qualification

DEGREE	YEAR	SUBJECTS	INSTITUTIONS
MSc	2004	Zoology	Quaid-I-Azam University, Islamabad, Pakistan
M.Phil	2008	Cell Biology	Quaid-I-Azam University (Animal Sciences), Islamabad, Pakistan
Ph.D	2013	Biosciences	COMSATS Institute of Information Technology, Islamabad

3. Area of Specialization: Genetics

4. HEC approved supervisor

5. Professional Experience (Research and Teaching): 3 years

7. Research Projects; Completed=02

8. Participation in Conferences/Workshops: 2

9. Supervision of Post-Graduate Theses: a) M.Phil.: 5.

10. Publications

Papers Published in Peer Reviewed Journals:

7

Publications during reported period (2018-2020)

1. Hassan MU, Iqbal MF, Riaz A, Zafar MA, Shamim A, Rehman SU, Kayani MFA, Baig RM. Prevalence and Chemotherapy of Warble Fly Infestation in Goat Population of District Khushab, Pakistan. Pakistan Journal of Science. Volume 68 (Issue No. 2) June 2016. 128-132.
2. Banaras F, Abbas F, Awan MA, Riaz A, Khan IA, Ahmad Z, Mengal MA, Banaras S, Hassan M, Zafar MA, Baig RM. Molecular Survey on the Prevalence of Caprine mycoplasma in the Goats of Quetta City of Pakistan. International Journal of Veterinary Science. 2016, 5(3): 158-163.

3. Wazir U, Sanders AJ, Wazir A, Baig RM, Jiang WG, Ster IC, Sharma AK, Mokbel K. Effect of the knockdown of death-associated protein 1 expression on cell adhesion, growth and migration in breast cancer cells. *Oncology Reports* 33(3):1450-8.2015.
4. Sabir M, Baig RM, Ali K, Mahjabeen I, Saeed M, Kayani MA. Retinoblastoma (RB1) pocket domain mutations and promoter 5 hyper-methylation in head and neck cancer. *Cellular Oncology*, 37 (3), 203-213. 2014
5. Ali K, Mahjabeen I, Sabir M, Baig RM, Zafeer M, Faheem M, Kayani MA. Germline Variations of Apurinic/Apyrimidinic Endonuclease 1 (APEX1) Detected in Female Breast Cancer Patients. *Asian Pac J Cancer Prev*, 15(18), 7589-95. 2014
6. Qureshi Z, Mahjabeen I, Baig RM, Kayani MA. Correlation between Selected XRCC2, XRCC3 and RAD51 Gene Polymorphisms and Primary Breast Cancer in Women in Pakistan. *Asian Pac J Cancer Prev*, 15(23): 10225-9. 2014.
7. Kayani MA, Khan S, Baig RM, Mahjabeen I. Association of RAD 51 135 G/C, 172 G/T and XRCC3 Thr241Met Gene Polymorphisms with Increased Risk of Head and Neck Cancer. *Asian Pac J Cancer Prev*, 15 (23), 10457-10462. 2014.

10.CURRICULUM VITAE

1. Personal Data

Name: Dr. Muhammad Irfan

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2. Academic Qualification

DEGREE	YEAR	SUBJECTS	INSTITUTIONS
Ph.D	Cont..	Neurobiology	Pir Mehr Ali Shah Arid Agriculture University, Murree road, Rawalpindi
M.Phil.	2008	Zoology	Pir Mehr Ali Shah Arid Agriculture University, Murree road, Rawalpindi
M.Sc	2006	Zoology	Pir Mehr Ali Shah Arid Agriculture University, Murree road, Rawalpindi

3. Area of Specialization: Reproductive Endocrinology and Genetics

4. Professional Experience (Research and Teaching): 9 years

5. Research Projects; Completed=01

6. Participation in Conferences/Workshops: 3

9. Supervision of Post-Graduate Theses: a) M.Phil.: 11.

10. Publications

Papers Published in Peer Reviewed Journals:

14

Publications during reported period (2018-2020)

1. **Irfan, M.**, Ismail, S. B., Noor, N. M., & Hussain, N. (2020). Efficacy of Aspirin for Vasculogenic Erectile Dysfunction in Men: A Meta-Analysis of Randomized Control Trials. American journal of men's health, 14(5), 1557988320969082. <https://doi.org/10.1177/1557988320969082>. (IF: 1.605).
2. **Irfan, M.**, Hussain, N. H. N., Noor, N. M., Mohamed, M., Sidi, H., & Ismail, S. B. (2020). Epidemiology of Male Sexual Dysfunction in Asian and European Regions: A Systematic Review. American Journal of Men's Health. <https://doi.org/10.1177/1557988320937200>. (IF: 1.605).

3. **Irfan, M.**, Hussain N. H. N., Noor N. M., Mohamed, M., Ismail S. B. Sexual Abstinence and Associated Factors among Young and Middle-Aged Men. (2020) A Systematic Review. *The Journal of Sexual Medicine*. 17(3): 412-430. (IF: 3.23)
4. Ismail S. B., Noor N. M., Hussain N. H. N., Sulaiman Z., Shamsudin, M. A., **Irfan, M.** (2019). Angiotensin receptor blockers for erectile dysfunction in hypertensive men: A brief meta-analysis of randomized control trials. *American Journal of Men's Health*, doi.org/10.1177/1557988319892735. (IF: 1.605).
5. Moez, S., Khalid, Z., Jalil, F., **Irfan, M.**, Ismail M., Ari. M. A., Niazi, R., & Khalid, S. (2019) Effects of SLC22A2 (rs201919874) and SLC47A2 (rs138244461) genetic variants on Metformin Pharmacokinetics in Pakistani T2DM patients. *Journal of Pakistan Medical Association*. 69 (2): 155-163. (IF: 0.642)
6. Qayyum, A., Najmi, M. H., Mansoor, Q., **Irfan, M.**, Naveed, A. K., Hanif, A., Ismail, M. (2018). Frequency of Common VKORC1 Polymorphisms and Their Impact on Warfarin Dose Requirement in Pakistani Population. *Clin Appl Thromb Hemost*, 24(2), 323-329. doi:10.1177/1076029616680478 (IF: 1.85)